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ORIGINAL COMMUNICATIONS.

THE TREATMENT OF URETERAL CALCULUS BY VISCERAL DRAINAGE.

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I will present in this short note some of the results of visceral drainage on ureteral calculus. By visceral drainage I mean the ingestion of ample, liberal quantities of fluid at regular intervals to irrigate the viscera. Visceral drainage adds to the fluid contents of the arteries, veins, and lymphatics. If a vessel is full of fluid, it will present vigorous normal function (sensation, peristalsis, absorption, secretion). By drinking an abnormal quantity of fluid, 8 ounces every two hours, adding an epithelial stimulant for the urinary tract, as NaCl, and intestinal tract, as $MgSO_4$, or aloes, we secure vigorous and even violent visceral peristalsis—especially in the ureter. Violent or even vigorous ureteral peristalsis may frequently dislodge a ureteral calculus and expel it through the urethra.

Visceral drainage is a harmless method, and consequently accompanied with no evil effects. I have employed visceral drainage for twenty-five years and found it to be one of the most rational and valuable forms of therapeusis. It is especially valuable and effective in ureteral calculus of limited dimensions (indicated by the *x*-ray). If the patient be afflicted with parenchymatous nephritis, NaCl should be omitted from the visceral drainage.

Since in many subjects it required some half-dozen days to dislodge a calculus by means of visceral drainage, I suggest that the treatment should be continued for several weeks if not early successful. Visceral drainage is successful when employed persistently and systematically.

I select the following three cases as typical examples of successful visceral drainage in the expulsion of ureteral calculus:

Case 10.—This patient, a woman, thirty-five years of age, had three different attacks of severe pain in the left side. The last two, some weeks apart, lasted for ten to thirty hours. Separate ureteral catheterization practically presented blood, pus, and albumin in the urine of the left ureter only. The *x*-ray presented a doubtful shadow on the left side. She was placed on visceral drainage, 6 pints daily, or 8 ounces every two hours. The calculus passed on the seventh day, after which she was free from pain.

Case 11.—This woman, thirty-six years of age, was afflicted with numerous attacks of pain in the right side which recurred in six months. I diagnosed ureteral calculus and placed her on visceral drainage—*i.e.*, 6 pints of fluid daily, or 8 ounces every two hours. In about three days the violent ureteral peristalsis forced a calculus into the bladder and through the urethra.

I continued the visceral drainage for a week longer, when another calculus of larger size passed. The woman subsequently remained free from pain.

Case 12.—This subject, a man, thirty-three years old, referred to me by Dr. Walter Fitch, of Chicago, suffered from severe

pain in the right side for three years. His urine was reddish-brown with blood, with some pus and albumin. I placed him on visceral drainage—*i.e.*, 6 pints of ¼ normal salt solution daily (8 ounces every two hours), besides his regular drink with meals. The fourth day he said he felt something "tear down his belly." On the seventh day I cystoscoped him, and saw projecting from the vesical orifice of the right ureter the sharp point of a rough, shaggy, ragged calculus. I sent him to a hospital to await further observation. On the ninth day the calculus was dislodged under the vigorous ureteral peristalsis produced by the visceral drainage and passed per urethram. Since the passage of the calculus he has been free from pain.

TINCTURE VERATRUM VIRIDE (NORWOOD).[1]

BY J. S. TODD, M.D.,

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At the request of several prominent younger members of the medical profession I write this short article on a drug that was popular in the South when I began to practice medicine, one of the most generally used—in fact, it was universally prescribed in all surgical fevers, sthenic inflammations, and pneumonia especially. It also had its advocates even in the continued fevers.

To illustrate how completely it has fallen into disfavor among book writers up North, and West, where it was never popular or given correctly, I quote from Sollman, author of the latest work on Pharmacology, etc. All that he has to say under the heading of therapeutic application of this drug given internally is: "It has been used after the manner of aconite to secure the reduction of temperature by artificial *collapse*. It has no advantages."

Shades of the mighty dead, I would be ashamed to meet you in the Elysian Fields, did I hold my peace!

What I write is confined exclusively to the tincture veratrum viride as prepared by the Shakers at Mount Lebanon, N. Y., according to the formula given by Dr. Norwood, of Cokesbury, S. C. I never used any other preparation, nor did any of the Southern doctors, at any time.

The usual dose given by us was 1½ minims, or three ordinary drops, generally at three-hour intervals. Bear the dose in mind, as the doses directed in all the modern materia medica are from 5 minims (10 drops) to 30 minims (60 drops). Given in such inordinate quantities I can very well comprehend why it should be regarded with disfavor, even alarm, for it has to be watched, lest it cause too much depression if given only in the dose I have indicated above. This can be obviated, however, by administering 1/20 grain morphine, 3 minims of laudanum, or half a drachm of paregoric with *each* dose of the veratrum. All the modern therapeutic books give a long list of antidotes to its poisonous action. But one is needed: a hypodermic of morphine restores almost as quickly as an alkali neutralizes an acid. This I know by numerous personal experiences.

That the drug in question cuts short a pneumonia, typhoid fever, or any other disease I do not affirm or believe, but against its being relegated to a barbaric past I protest, for it has uses still, despite its abuse in times gone by. Veratrum viride is not only a cardiac depressant but a vasodilator. Given in the quantity I have stated, it rarely —never, if the opium be added—produces nausea, vomiting, diarrhea, profuse sweating, giddiness, or symptoms of collapse. The pulse can be kept soft and at about 65 or 70. The temperature is reduced to near normal.

[1] Read before the Section on Medicine of the Southern Medical Association, the southern branch of the American Medical Association, at a meeting held in Atlanta, Ga., Nov. 10, 11, and 12, 1908.

There is but one affection under my observation in which doses of as much as 5 minims (10 drops) should be given, and that is in puerperal convulsions, and this quantity hypodermically at that, and repeated, if need be, hourly. To its curative effect in this trouble there are crowds of medical observers.

Veratrum is a valuable antidote in the treatment of opium poisoning, which, so far as I am aware, I was the first to point out in an article in the January number, 1874, of the *American Journal of the Medical Sciences*, entitled "Notes on a Case of Opium Poisoning."

My principal employment of veratrum now is in the treatment of certain heart diseases and all troubles where there is increased blood-pressure, arteriosclerosis, or calcareous degeneration of the arteries, and I seldom employ it alone, but generally as an antagonist to other drugs more necessary.

In aortic insufficiency or regurgitation, while digitalis is not *always* contraindicated, it is generally bad practice to administer it or strychnine because it contracts the capillaries and thereby increases the blood accumulation in the left ventricle, yet we would often like to give it; so in hypertrophy, in which dilatation or fatty degeneration is beginning, or tumultuous palpitation is a symptom. In chronic Bright's disease, in which despite diet and all other treatment the general symptoms call for digitalis, as expressed by cough, blood-tinged sputum, dyspnea, scanty urination, anasarca, and a weak, rapid, irregular, but *hard* pulse, we are often surprised to find that each dose of digitalis increases the general distress, for the spasm in the peripheral circulation is intensified.

I can hear the question, Do you not give or combine with the digitalis, squill or strychnine, nitroglycerin, nitrite of sodium, spirits of glonoin, or have the patient inhale nitrite of amyl? Well, I have tried them all and acknowledge that the object aimed at, namely, the abolition of spasm in the arterioles, etc., is correct, and often accomplished, but not unfailingly so, even for a brief period, unless we give nitrite of amyl. Why? Over 50 per cent of the nitroglycerin that we use in the form of tablets is inert, has decomposed; the same is true of the spirits of glonoin, or trinitrin, as it is often called; the soda preparation being decomposed in the stomach is apt to cause derangement of the digestion, and therefore has not the advantages of veratrum in this regard.

Recent experiments, too, teach that the dilatation of the arterioles, when nitroglycerin is given, is over in less than five minutes, and subsides in at least half that period when nitrite of amyl is inhaled. I am not sure as to the exact time, but am positive that I have stated the maximum number of minutes or more. So it is obvious that we lean on a broken reed when we employ them, even granting that they are pure, except to tide over emergencies. Not so with tincture of veratrum, for its maximum effects are not apparent until at least two and a half hours have elapsed. This gives the explanation of the doses being administered by the older doctors at three-hour intervals. The effects last for six to twelve hours, thereby corresponding very nearly to digitalis, squill, and strychnine. The beneficial effects we would get from it, when administered with digitalis, strychnine, strophanthus, etc., in arteriosclerosis, are so obvious as to need no comment. I usually make the following prescription to meet the conditions spoken of, and have every and repeated clinical proof to be amply satisfied with it:

> Tinct. verat. viridi (Norwood), min. xlv;
> Pulv. digitalis,
> Pulv. scillæ, āā 3ss;
> Strychninæ nitratis, gr. ss;
> Pulv. zingiberis, 3j.
>
> M. ft. cap. xxx. S.: One every 4, 6, 8, or 12 hours, as needed.

Calomel or blue mass, or pill of aloes or myrrh, may be added as occasion requires.

Let me state that in writing prescriptions where the minim sign is used we should always underscore it, for the majority of pharmacists will give you two drops—dropped from I know not what. To be

sure that I get what I want, I nearly always not only underscore the minim mark, but also put a cross by it, which refers to a note at the bottom of the prescription.

In the compounding of drugs, or writing a prescription, as in all things else, "while perfection is not trifles, trifles make perfection."

THE ART OF RIGHT LIVING.

BY R. SHAWE TYRRELL, M.B., L.R.C.P. LOND., TORONTO, CANADA.

It is generally conceded that the majority of Europeans and Americans take more food than is necessary to keep the body in a healthy condition, and it is not unreasonable to think that a gentle reminder of this fact from time to time may be provocative of some little good. If it be granted, as Sir Frederick Treves has remarked, that ignorance and folly are the two essential factors in producing disease, then to disseminate knowledge and to condemn follies are the most important duties of a medical practitioner, and the self-evident fact may be here stated that so long as gluttony and inebriety exist in greater or less forms so long will it be necessary for the doctor to administer drugs to overcome the ill effects of these excesses. But the question of the layman always is, What is excess? and the answer to this must usually rest with the physician, for what may be an excess for one man may not be for another, what may be sufficient for one period of life may be insufficient for another, or what may be even suitable for to-day may not be for to-morrow, so that it will be seen that our responsibilities in giving advice as to diet are very great.

The late Sir Andrew Clarke, of London, was, on one occasion, observed by his patient to be writing a very lengthy prescription, as he thought, for medicine; his anxiety was, however, somewhat relieved when he learned that the writing was chiefly directions as to diet.

In considering special forms of diet one might as well commence at the beginning of life, when the conditions ought to be more or less proper. It may, I think, be granted that at this period of life, when the child is nursing, one does not often find a dilated stomach, for to produce this abnormal condition time is essential, so that the infant that is in the habit of taking too much food regurgitates the excess shortly after; hence if the mother's milk is good, we ought to have a healthy infant, as far as feeding can make it so, for there can be no ill effects from overfeeding. As soon, however, as the child's nursing days are over, then comes the possibility of excess in food, for the stomach in children, even if it be not dilated, has generally the power of retaining a greater quantity than is sufficient for the building of the tissues, the heat of the body, and the necessary energy—one or all kinds of food may be taken somewhat in excess.

If the child is very active and lives largely in the open air, having normal excretory organs, then it will be proper for him to live on a diet representing in fair proportions the proteids, fats, and carbohydrates. If the same boy a little later on be placed in an office where he gets little exercise in the open air, we must not restrict any one kind of food, but rather the quantity of all, if we wish to keep him in good health. If at the age of twenty-five years, when he has attained his stature, he is still an office man without chance of much exercise, then it is our duty to put a check on the quantity of his proteids, for excess in this element of food is largely responsible for very many ills, and a due observance of the proper quantity will have a material influence on his well-being throughout life. As only broad principles can be stated in this short paper, it may be said that the less energetic and active in physical efforts a man is, the less proteids he will require; but the converse will not hold absolutely good, for when the appetite is sharpened by much

muscular exercise the individual will, in the great majority of cases, partake too freely of meats and other proteids—that is, more than is necessary to replace the tissues destroyed. Then when excess commences, dilatation of the stomach follows as a natural result, and this leads to the possibility of greater and greater excesses, so that if no curb be placed on the appetite, gluttony in a greater or less degree becomes the rule of life.

When the system is constantly overloaded and the excretory organs taxed to their utmost, day after day and year after year, we cannot look for or expect to find a healthy body or a buoyant disposition, but, on the contrary, lethargy and indisposition will be the marked characteristics.

It must not be forgotten that the constant overloading will certainly be harmful to the kidneys and other excretory organs, for in time interstitial changes will surely take place, and if some acute disease such as pneumonia does not intervene and carry off our patient, we will, at any rate, have a life much shortened by the gradual deposit of excretory salts in the tissues throughout the body. The man who ought to be in the prime of life will become prematurely aged, and it is then too late to effect more than an amelioration of his troublesome symptoms.

If the physician cannot control the quantity of his patient's diet, he can very often induce him to substitute the carbohydrates for his proteids, and in this way accomplish something. There will be no danger of not getting a sufficiency of tissue-building food, especially if a few beans and peas be occasionally put on his diet list.

Up to the present I have assumed that a man has started in the world with normal excretory organs, but it must be remembered that there is a large class of people who have commenced life with defective powers of excretion, their parents probably not having lived an abstemious life, or some form of malnutrition having been present in the child while *in utero;* hence we find all kinds of dyspeptic disturbances from early life, and to speak broadly these young people belong to the class of those who cannot tolerate with impunity much proteids.

Up to the age of maturity they will, of course, require a certain amount, and this amount will depend upon their different capacities for excretion. This large class as a rule live abstemious lives, *nolens volens,* being compelled to, because slight excesses will throw them off duty for a day or more; they very early in life get their severe lessons, and there is no danger with these of dilated stomachs. They sometimes envy their friends or neighbors, who eat twice as much as they can; however, they get along fairly well if they reduce the proteids and fats to a minimum and lead out-of-door lives.

There is another large number who suffer from malnutrition from birth, and although they may have fair excretory organs the power of assimilating food is impaired. They are lacking in vitality generally, and frequently too tired to eat a good meal. Tuberculosis in some form is likely to make its appearance among them provided a forced diet with some artificial digestive be not adopted. Here we find the proteids of the greatest value, but unfortunately they are frequently given to the almost entire exclusion of the other elements, hence energy is impaired or lost, and with it the power of properly assimilating food, so that a mixed diet with an abundance of proteids ought to be strongly insisted on.

The last large class of patients that I will mention consists of all those who are past the active period of life, and here it may be stated that many lives are shortened through intended kindness of friends and neighbors. The forcing of animal broths, jellied meats, and other proteids on the aged and infirm is, to say the least, not conducive to their health and strength. Let elderly patients be fed largely on the carbohydrates and fats, and they will have more power to help themselves, less disturbances of the stomach and bowels, clearer mental capacity, more cheerful dispositions, and an all-round greater comfort.

INSOMNIA: ITS PATHOGENESIS AND TREATMENT.[1]

BY ALFRED GORDON, M.D.,

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Sleep is a nervous phenomenon. It is characterized in all animals by a cessation of conscious and voluntary activity. It is due to a diminution or suspension of psychic functions, to a gradual or rapid breaking up of impressions coming from outside. During sleep the various systems of the brain are dissociated, but they become reassociated as soon as the body awakens. This periodicity is a general biological law, to which the functions of all the organs and of all the elements as well as the nervous system must submit. Activity calls for rest, and *vice versa.* Each cell of the organism needs rest after functionating a certain time. The nerve cell particularly, because of its great variation in adaptability and in physiological associations, is in need of resting periods. This is accomplished by sleep. The deduction which forces itself upon us is that sleep is an inevitable physiological necessity.

Two questions naturally arise: First, is there an anatomical basis for sleep? and secondly, what is the cause of abolition of organic activity?

As to the first question, various views have been expressed by physiologists, psychologists, and experimenters, but they are all hypothetical. Anemia or hyperemia of the brain has been advanced. The majority believe that during sleep the brain is in a state of anemia (Claude Bernard, Mosso, Hammond, Durham, Duval, etc.). Others, particularly Duval and Lépine, admit that sleep is due to a retraction of the ends of protoplasmic prolongations—dendrites—of the brain cells, and through this their mutual relation is interrupted. We also know that with Golgi's method of staining cells a difference can be observed in cells when they are in a state of activity or of rest. Agostini and Lamberto Daddi in 1898 described histological changes in the cells.

The question of the cause of sleep is equally unsettled. The chemical theory admits a periodic asphyxia of the brain (Pettenkofer, Voit, Pflüger) or an intoxication of the nervous centers with a noxious material which accumulates periodically in the brain (Obersteiner, Bing, Errera, etc.). Bouchard found in the urine of the day a poison which has a narcotic effect. Devaux explains sleep by the physical law of osmosis. Transudation of serum through the blood-vessels thickens the blood; the activity of the circulation is diminished, hence intelligence is obscured, and sleep is induced through this disturbance of isotonic equilibrium between the humoral substances. Another author expressed the view that sleep is a special positive function of the brain, a reflex act, an instinct. Finally a special sleep center in the brain was spoken of by some.

Whether any of these theories are accepted or not, the mechanism of sleep remains as yet problematical. They do not explain with certainty the question why cerebral anemia or hyperemia exists, why the neurones become retracted, why toxins accumulate periodically in tissues.

These few remarks concerning the pathogenesis of normal sleep are necessary for the proper analysis of the pathological sleep; they will render some assistance when the question of treatment of sleeplessness is discussed.

Sleep may be *normal* and *pathological.* To the latter belong *narcolepsy,* which consists of paroxysms of imperative sleep occurring any time during the day; *lethargy,* which is a hysterical phenomenon and usually follows a hysterical attack; *somnambulism,* which is also a hysterical manifestation and consists of walking during sleep; *night terrors,* which cause children to waken up and scream in a scared manner, quite unconscious apparently of the presence of their parents; *sleeping sickness,* which is an

[1] Read by invitation before the North Branch of the Philadelphia County Medical Society, Dec. 15, 1908.

African parasitic disease of a very grave nature.

We will not be concerned with these forms of morbid sleep. All of them are interesting phenomena and require a special study. Let us take up at once the discussion of the well-known form of disturbed sleep called "insomnia." Insomnia is also a pathological state of sleep.

Insomnia may be *total* or *partial.*

If the causes and pathogenesis of normal sleep, as we have seen above, are not known, a diminished sleep or absence of sleep, curiously enough, can be more readily and satisfactorily explained.

Diseases and conditions in which insomnia occurs can be considered under the following groupings, viz.: organic or functional disorders of the nervous system; psychoses; intoxications; infections: visceral diseases; general state of nutrition; painful general or local conditions; incidental causes.

Incidental Causes of Insomnia.—It is a common observation that a change of residence and of usual surroundings, a change of bed, produce sleeplessness (partial or total). Any excitement, emotion, sudden good or bad news, any anxiety and worry over certain fortunate or unfortunate incidents in our own life or over those of our dearest and nearest, a preoccupied mind, a determination to get up at a certain hour, a considerable amount of mental work done before retiring, thinking in one direction for hours (fixed ideas), which is particularly observed in scientists, inventors, and financiers, great desire and anxiety to finish a certain work which for some reason could not be done before the regular hour of sleep—all these circumstances frequently disturb sleep. Overheated or else a very cold atmosphere in which we spend the night may also interfere with sleep.

While the factors just enumerated are the habitual causes of total or partial sleeplessness, nevertheless it should be borne in mind that in insomnia as in normal sleep the question of individuality should be taken into consideration. With the same cause and in the same conditions such an individual will present complete sleeplessness, another will be disturbed only slightly or not at all.

Painful General or Local Conditions.—To this group belong extensive traumata of any part of the body, local injuries, localized inflammatory conditions, such as cellulitis; postoperative state; neuralgias of various forms, which are frequently aggravated at night; toothache; general or local pruritus, particularly anal; various paresthesias, such as burning, tingling, coldness, etc., in the limbs; hyperesthesia of the hearing apparatus, tinnitus aurium. In all these cases pain is the main factor in insomnia.

General State of Nutrition.—In cases of malnutrition, general debility, cachexia, the sleep is frequently disturbed or lost. Apart from special diseases that are capable of producing malnutrition, and which alone may be responsible for the accompanying insomnia, the latter is met in individuals whose poor hygienic surroundings and privations render them pale, emaciated, weak, with a poor and slow cerebral circulation. Naturally such individuals cannot work properly or efficiently. They are mostly idle. Idleness combined with poor general nutrition and weakness is sometimes the cause of insomnia. Of course here again individual peculiarities will show themselves: one will be affected differently from another; one will sleep very poorly or lie awake a very long time, another on the contrary will sleep profoundly. In the majority of cases the sleep is considerably disturbed. It is a common observation that some people cannot fall asleep, and they lie awake for hours, if they happen to go to bed hungry. Some get up in the middle of the night to eat, as otherwise they cannot get the proper sleep.

Visceral Diseases.—Among various maladies in which insomnia is one of the important symptoms cardiac disturbances are the most frequent. When the disease is well established and asystole is present, dyspnea and orthopnea, palpitation, or precordial distress interfere considerably with sleep. Patients with diseases of the heart are never properly asleep. Frequently they

are compelled to remain in a semirecumbent position, and they are seen nodding off continually into momentary slumbers. They sometimes awake with such feelings of alarm that they are anxious to avoid sleep.

Renal affections with polyuria, cirrhosis of the liver, are next in frequency. Dyspepsia of gastric or intestinal origin is well known to disturb sleep. Eructations, discomfort due to fulness, heaviness, or to a sensation of emptiness, obstinate constipation, accumulation of gas, may deprive the individual of sleep or else allow him partial sleep.

Diseases of the blood, such as anemia, chlorosis, pernicious anemia, have among their symptoms also insomnia; chlorotic girls quite frequently complain of sleeplessness.

Arthritism, gout, diabetes, and arteriosclerosis are also causes of insomnia. In aged individuals it is a common observation, and the arteriosclerosis is in all probability at fault.

Infections and Intoxications.—Quantitative or qualitative changes in the blood due to infections or intoxications are frequently a source of a more or less pronounced insomnia. Fever accompanied by insomnia and caused by autointoxication of gastric or intestinal origin in children is a very frequent occurrence. As a sign of the onset of an infectious disease (typhoid fever, grippe, pneumonia, etc.) insomnia plays an important rôle.

High febrile states indicating an infection are always adverse to natural sleep; the restlessness, irritability, and sweating wear the patient out, and sleep is obtained only toward morning. Sometimes high fever is combined with delirium, and they prevent any sleep for many successive days and nights. This is particularly observed in infectious diseases complicated by previous acute or chronic intoxication. If an alcoholic individual should develop pneumonia, typhoid, or other febrile affection, delirium will appear promptly and the sleeplessness will be complete. Intoxications *per se* are a common cause of insomnia. When they are chronic and the patient becomes accustomed to their use, the effect is not very disturbing. However, when the amount consumed is excessive, the sleep is partly and sometimes completely interrupted. The accompanying dreamy state, which is mostly of a terrifying nature, will frequently awaken the patient.

The acute moderate intoxications are invariably followed by sleeplessness. Profound acute intoxications on the contrary make the patient stuporous and soon render him unconscious.

The influence of coffee, tea, and tobacco on those not accustomed to their use is well known. In hysterical or other mentally peculiar individuals the influence even of an occasional drink of alcohol or tea and coffee is decidedly injurious with regard to sleep. It is true that in some cases tea, coffee, alcohol, or a cigar at night induces sleep, and I have seen such cases, but the general experience teaches that whether they are taken occasionally or frequently, they are undoubtedly disturbing elements to the nervous system in general and to the sleep particularly.

Diseases of the Nervous System.—Insomnia is most frequently associated with nervous diseases. Indeed, in some cases, as we will see later, its early recognition is of the utmost importance, as it may be a forerunner of a grave nervous or mental breakdown.

Among the organic nervous diseases insomnia is encountered as a prominent symptom in cerebral tumors, syphilis, meningitis, hemorrhage, softening and arteriosclerosis of the brain.

In all these conditions the sleeplessness may be due to circulatory disturbance acting as an irritant upon the brain cells and associated fibers. In tumors and syphilitic gummata of the brain the intracranial pressure produces usually pain, which may be extremely severe. The insomnia here is due to both disturbed circulation and pain. In meningitis the irritation of the meninges combined with the febrile state and circulatory disorder are all sufficient reasons for cerebral irritation, hence for insomnia.

It is true that tumors, gummata, and

meningitis are capable of preventing sleep solely through the distention of the meninges which are supplied by the sensory filaments of the fifth nerve, otherwise speaking through pain, but the perturbation of circulation which all cerebral affections produce by reason of localized or generalized lesions of the meningeal or cerebral vessels is the most potent factor in the question at issue. The well-known pathological conditions in cases of meningitis with its exudation, leucocytic infiltration, also the characteristic vascular changes in syphilitic cases, the fact that the meninges are extremely and essentially vascular membranes, and finally the condition of arteriosclerosis which evidently and directly interferes with the cerebral circulation and which is frequently the cause of apoplexy (hemorrhage and softening)—all these factors clearly demonstrate the reason of irritation of the brain and consequently of insomnia in organic affections. Some diseases of the spinal cord may present insomnia among their symptoms, but the latter usually occurs when the original lesion becomes ascending and invades eventually the upper portion of the cerebrospinal axis.

Functional nervous diseases present the largest contingent of individuals suffering from insomnia. Their name is legion. Every practitioner, not only the neurologist, meets daily with cases of this category. Hysteria, neurasthenia, hypochondria—the three great neuroses—supply the material. There is not one neurasthenic or hypochondriac that will not mention his sleeplessness as his chief complaint. The hypochondriac particularly will go to great lengths in describing various phases of his insomnia. One of my patients made memoranda and marked the hour, minute, and second when he would get awake and how long he lay sleepless. This patient's sleeplessness continued for months, and he had a small note-book with complete data. The hypochondriacs usually attribute it to some special visceral disease, analyze themselves, and they lie awake and go over all their organs trying to find a cause for the insomnia. The above mentioned patient thought first of his heart and then of his brain. Not finding relief from various remedies he began to read books on the subject without guidance. Brain tumor, cerebral syphilis, finally various forms of insanities, particularly paresis, are the affections to which he successively attached himself. He has been in this condition for the last three years and shows no sign of these grave maladies. His insomnia is psychic in origin, and a close questioning revealed that while his sleep is interrupted he however averages five or six out of twenty-four hours. There are also hypochondriacs who have a sufficient number of hours of normal sleep, but the presence of dreams makes them disbelieve the true state of affairs, when told so; they are convinced of their insomnia and abandon themselves to self-analysis in search for a cause.

The neurasthenics invariably complain of disturbed sleep or complete insomnia. In this affection one would expect that the chronic muscular and mental fatigue which is the chief characteristic symptom would rather induce sleep, but the reverse condition is observed.

Energy is produced not by the nervous system but by the nutrition of the entire organism. Disturbances of the latter are followed by various changes in the function of energy. This function is normally periodic, the rest repairs the fatigue. Consequently energy must be produced and accumulated in a sufficient quantity and consumed periodically. In a pathological state its production is diminished, its consumption is exaggerated, and the regular periodicity disappears. The neurasthenic, less active than a healthy individual, rests less completely. A morbid fatigue of brain tissue is due to a modification of its chemistry, has evidently an irritating influence, and sleep is therefore disturbed. Besides, the physiologists Mosso and Féré have pointed out that even in normal individuals fatigue increases emotionality. As a rule a neurasthenic sleep is incomplete. Either the patient has great difficulty in falling asleep or awakes several times during the night in a state of anxiety and excitement. If he does sleep, the latter is frequently superficial and

accompanied by terrifying dreams. In the neurasthenic psychoses (psychasthenia) with the obsessions, the special fears, the inability of controlling oneself, insomnia is a frequent occurrence because of these morbid manifestations; the cerebral cells are in a state of continuous persistent activity in one direction.

Hysterical individuals, especially those with a marked emotional state, are very frequently deprived of sleep. The nature of the disease is such that the great variability of disposition, of humor, of the manner of thinking, feeling, and acting, which is characteristic, interferes with the normal rest of brain cells, consequently with sleep. If sleep occurs, it is frequently interrupted by dreams, sudden frights. Suggestion or autosuggestion, which is the most characteristic feature of the disease, plays an important rôle in some cases of hysterical insomnia. An idea, an image, a perception of a mild or strong character, can be suggested by another person or by themselves so as to form the predominating train of thought, and so overwhelmingly as to interfere with other functions; in such a manner insomnia is established.

When a hysterical individual exhibits mainly psychic manifestations, such as great changeability of thoughts, spells of laughing or crying, hallucinations, dreamy states, sleep is either totally absent or much diminished; it is also very superficial, the least noise or a dream interrupting it.

Special emphasis should be laid on the hystero-neurasthenoid states caused by traumata. Railway accidents particularly produce the largest number of victims of this disorder. Among all the symptoms insomnia presents here the most prominent feature. The shock (even without an evident material injury) disturbs the workings of the entire nervous system and places the patient in such a state that the least recollection of the accident, of the circumstances surrounding it, of the details of the shock makes him or her tremble and fear. The thought of the scene never leaves the patient's cerebrum, and it becomes a genuine obsession from which he or she finds no release. Sleep under these conditions is naturally disturbed or entirely absent. The insomnia may last a very long time and persist even after the litigation is satisfactorily settled, as I have seen in a number of instances. The reason lies evidently in a prolonged dynamic disturbance of the function of the brain tissue, and particularly of its cells, from which impulses are reflected. The original shock sustained by this tissue was so intense that the reëstablishment of the normal equilibrium of the latter is a very difficult task.

Mental Diseases.—Insomnia in various forms of insanity is a very common symptom. It may be the result of an agitated state, the result of certain persistent delusive ideas and hallucinations, or else the accompaniment of a grave progressive mental affection. In the latter case it may be for a long time a forerunner of a very serious malady which creeps insidiously and gradually affects other faculties, to constitute the expected mental derangement. A history of a prolonged and persistently interrupted, intermittent, fragmentary sleep, independent of any external cause, is to the alienist of very serious importance.

Let us discuss the various phases of this disorder in insanities.

The common delirium occurring in the course of toxi-infectious diseases, the delirium tremens—that well-known pronounced state of agitation with tremor and terrifying hallucinations affecting all the special senses, the specific grave delirium—are all accompanied by insomnia. The latter is one of the striking symptoms and sometimes very difficult to be controlled.

Mania is the next mental affection, combined with agitation, in which sleeplessness is predominant. The exalted emotional state is manifested in every sphere of the patient's life, and the special senses being thus in a state of continuous stimulation prevent the patient from obtaining sleep. In melancholia the self-blame, the psychic pain, the realization of physical and mental worthlessness, the tendency to self-destruction, the frequent hallucinations accompanying the delusions of unpardonable

sin, are all sufficient reasons for insomnia. The paranoiac who is full of well-organized and systematized delusions, who is continually planning to accomplish certain acts, whose mind is occupied by a fixed faulty idea or ideas, who in the persecutory stage has one or two persons in his thoughts and continuously thinks how to revenge himself, may be deprived of sleep, especially when hallucinations are present.

The dementia præcox individual frequently suffers from sleeplessness mainly caused by hallucinations. The senile dement has not only the deteriorated cerebration but also the arteriosclerosis, which as we have seen above is a sufficient cause for insomnia. He is frequently tortured by persecutory ideas, and is in constant fear of being robbed, defrauded, attacked, etc. Sleep will naturally be disturbed, especially when the senile hears and sees his imaginary foes.

Space and time will not permit to go into a detailed account of all possible forms of mental disorders of which insomnia is a natural consequence. The above gives a satisfactory idea of the cause of insomnia in some forms of insanity. Speaking generally, we can say that all hallucinatory individuals sleep poorly; this is conceivable when the state of anxious expectation and attention in which they are absorbed is taken into consideration; in such individuals the internal sensations are perverted and the night brings to them a recrudescence of the morbid phenomena.

Agitated individuals sleep little or poorly, and their sleep is full of disturbing dreams which are in relation with the morbid organic sensations continuously felt by them. Once more I wish to emphasize the fact that insomnia may be present for a long time before an actual mental disease develops; it may be, so to speak, a premonitory symptom of a grave affection. It should be looked upon with suspicion, especially when general nervousness and some slight disturbance of mnemonic faculties or else a state of depression accompany it.

As to the pathogenesis of insomnia in insanities, the state of circulation and especially blood-pressure may satisfactorily explain the condition. Autointoxication of intestinal or other sources and perverted function of the ductless glands are perhaps the original causes of the psychoses themselves and of their insomnia. The alterations of blood-pressure are probably the direct cause of the insomnia. A medium pressure corresponds to a normal sleep; in hypotension or hypertension sleeplessness appears.

Treatment of Insomnia.—The problem of treatment must naturally be divided into as many chapters as the conditions creating insomnia. The general principles, however, remain identical for all forms and varieties. For completeness and comprehensiveness of the subject let us take up seriatim the chapters discussed above.

In treating insomnia caused by what we called "incidental factors" we cannot forget that an emotion, shock, or anxiety cannot always be prevented; life is full of them. Intense preoccupation of mind, and thinking in one certain direction, on the contrary are more preventable than the former. In both cases a hypnotic of course will put an end to the disorder, but such a procedure is unscientific and not at all necessary. Moreover, in some individuals the habit and craving for drugs may be acquired and consequently become dangerous. Before we have recourse to drugs we must employ all other means to induce sleep. It is therefore a natural sleep and not a drug sleep that we must endeavor to obtain. Remove from the economy as far as possible elements that are capable of producing cerebral irritation, stimulation, and congestion.

No matter how moderate and temperate the individual may be, I forbid him the use of heavy meals at night. His supper should consist of milk and eggs, and then in small quantities. His middle-day dinner must contain a very small amount of meat. All the three meals should not be abundant. The object of it is to avoid accumulation of large quantities of waste matter, and therefore to avoid absorption of an irritating material. I find that milk is an ideal food in such cases. Sweets should be avoided. All stimulants, including tea and coffee,

must be removed. Tobacco must be reduced to a minimum, and even abandoned. At all events no smoking should be done in the evening. Constipation must be immediately remedied. In the class of cases under discussion the organs and tissues are supposed to be intact, and the cause of the insomnia lies in an incidental mental stimulation interfering with the natural repose of the cerebral tissue.

In addition to the above dietetic measure hydrotherapy is a powerful adjuvant. A lukewarm bath of half an hour's duration taken before retiring, and repeated when the patient awakens in the night, or if in spite of it cannot fall asleep; a brief shower bath (one-half of a minute) of cold or warm water; wrapping in a sheet wetted in tepid water for one minute—these are the means which sometimes succeed in inducing sleep. In some cases a cold wet towel placed on the neck while in bed gave me excellent results when the other forms of hydrotherapy failed. Finally, in not a few instances by placing the feet and the ankles in hot water for fifteen minutes I succeeded in obtaining sleep.

When, however, extreme sorrow and persistent mental preoccupation are the causes of the insomnia, the above means may not give the expected results. Such cases are the most difficult to treat, as mechanical external means are then not sufficient. The cause lies deeper—it lies in the cerebral activity, in the process of cerebral associations which are so intense that they become persistent; they become obsessions of which the patient cannot rid himself. The remedy in such cases is in the patient's own hand, viz., brain. The physician's duty is only to manage, to instruct, to direct him. If the physician is a skilful and tactful man, he can accomplish a great deal. The patient is taught how to overcome his obsessions. He is advised to lie perfectly quiet without any light in his room, which should be removed from the noisy side of the street. He then is told to abandon himself and relax completely. As soon as the usual thought makes its appearance in his mind, he immediately commences to change his train of thoughts and forcibly takes up a different idea. The more the old thought persists, the more effort must be made to take up new ideas so that after a series of these mental gymnastics the old predominant thought will no more be predominant, will gradually break up, and the fragments will eventually disappear. Moreover, the patient's cerebrum will acquire the habit of gaining full control and develop and abandon thoughts at his free will. This is the normal condition.

When a man suffering great calamities is in a genuine deep sorrow and cannot sleep, we must do some "psychotherapeutics." A long and particularly sympathetic talk, pointing out the difficulty and even inability of avoiding troubles of which life is full, pointing out the unmanliness in succumbing under their influence, the necessity of overcoming temporary disappointments in order to begin life anew, the necessity of looking at misfortunes as only transient unavoidable events which are never lasting, and the effort that every human being must make in developing a spirit of hopefulness for amelioration of the present condition—these are the main elements of treatment of the afflicted psyche. Of course they will vary in details according to the individual and circumstances. If this is accomplished in a firm but gentle and genuinely sympathetic manner, much can be done to relieve that distressing symptom, insomnia. Some may be skeptical as to the effect of this mental therapeutics; they usually say that it is applicable only to individuals of lesser intellect, to the masses. It is an error. Personally I employed this method in all classes of persons, and obtained very satisfactory results in the most intellectual men. No matter how clearly we may see our ways in life, we all without exception need at times good persuasion and sympathetic address from a good and sympathetic friend. We who practice psychotherapeutics in our daily work are not less vulnerable than those who are ignorant of its existence.

The methods of treatment of insomnia just outlined are not always used in an isolated manner; they are frequently being

combined, as, for example, to the psychic treatment balneation may be added.

In certain cases, however, these means are not only insufficient but meet with failure. Then and *only then* medication must be resorted to. A small amount of sodium or strontium bromide, say 10 grains every two hours, may be perfectly sufficient. Veronal 5 grains with codeine ⅛ grain, repeated every hour for three or four doses, if necessary, is a very good hypnotic. Trional and sulphonal may accomplish the same results.

Insomnia from Painful Conditions.—The indications for treatment of this form are evident. An inflammatory condition, an injury, a pruritus, a neuralgia, must be treated accordingly. As soon as the pain is removed, a natural sleep will ensue. It frequently happens that after pain is removed, a state of exhaustion follows; this is especially noticeable in cases of pain of long standing. In such instances the patient lies wakeful for hours and cannot get sleep. Any of the means mentioned in the preceding chapter may then be resorted to. Particularly I recommend hydrotherapy. A tepid bath of fifteen to thirty minutes may bring on rapidly the long expected sleep. I have seen patients fall asleep while in the water.

The treatment of insomnia depending on the general state of nutrition is simple, but as we are not always in a position to improve poor hygienic surroundings which create the low state of nutrition, we frequently meet with failures. One must be very careful, and on this I lay special emphasis, in prescribing hypnotics to individuals with a poor general nutrition, as I have seen very disastrous results. In fact, personally I omit them entirely and content myself with a gentle general massage, a sponge bath, and an outing before going to sleep. It stands to reason that a continuous effort must be made to improve the patient's general condition.

Insomnia from visceral diseases is sometimes difficult to overcome, as when sedatives or hypnotics are required the latter may be contraindicated in view of the cardiac or pulmonary affections which cause the insomnia. Mechanical means alone will have to be employed. A gentle massage over the head, a sponge bath with tepid water, a suitable position of the body, as for example, in cases of dyspnea the body will be in a semirecumbent position and the head elevated—these are the only measures to be used. Hypnotics are also to be avoided in diseases of the blood, and the mechanical means alone be utilized. The greatest effort must be made in relieving the original diseases that cause insomnia.

In infectious diseases the insomnia is intimately associated with the accompanying fever. We must therefore endeavor to decrease and remove the latter. Not infrequently infectious diseases become complicated by meningeal manifestations, and insomnia has here a double source. Hypnotics therefore should not be given until the fever subsides. A mild sedative, however, may be administered when there are signs of meningeal irritation, such as delirium and restlessness. Hydrotherapeutic measures alone are sufficient to lower the temperature, alleviate the meningeal manifestations, and thus induce sleep. An ice-cap for a few minutes at a time and frequently repeated, cool spongings with alcohol, or else full baths of tepid or slightly cool water, will accomplish the purpose.

In intoxications sleep is interrupted. The accompanying delirium puts the patient in a state of agitation, and especially so when hallucinations accompany it.

The treatment of the deliria will be discussed in the chapter on treatment of insomnia in insanities. When a history is given of excessive and even moderate use of alcohol, tea, coffee, and tobacco, insomnia will disappear in the majority of cases after the removal of these poisons. Regularity in the mode of living, proper hygiene, and light food, in addition to abstention from the intoxicating elements, are sufficient to obtain quiet and normal sleep.

In treating insomnia caused by organic nervous diseases, the variety of the latter should be taken into consideration. In brain

tumors the amelioration of the excruciating pain will induce sleep. In syphilis cerebri mercurials and iodides are of use. Speaking generally, even in the absence of a clear specific history, syphilis should always be thought of in cases of rebellious insomnia and specific treatment tried. In cerebral arteriosclerosis nitroglycerin will be of use. In hemorrhages the elevated position of the head, relieving the blood-pressure, may give a satisfactory sleep. In cerebral softening due to a clogging up of blood-vessels lowering of the head may be of use.

Insomnia in hysteria requires sometimes vigorous measures. Removal of stimulants of any kind, regularity of meals, which should be nutritious but not abundant, regulation of the gastrointestinal tract, avoidance of exciting scenes, of reading at night, outings at regular intervals, quietness of life in general, hydrotherapy in the shape of lukewarm baths, are all excellent means which have given the writer very satisfactory results even without the aid of hypnotics. Sometimes, however, he was obliged to add bromides in very small doses.

In cases of hysteria with a marked emotional state the best measure consists of isolation and confinement to bed. Indeed it is an ideal treatment. In fact, whenever I can persuade the patient, I commence this treatment at the outset. In such a manner I obtain full control of the patient and place her in company of an intelligent friend or nurse, who is instructed to do as little talking as possible, and with kind and gentle words soothe the patient's outbursts of emotionality, of capriciousness, of temper, etc. Here all depends upon the surroundings. When night comes, a gentle rubbing of the forehead, a verbal persuasion to go to sleep, will gradually induce a normal and quiet repose. A small dose of bromide (about 10 grains) may be given. The room is made semidark, all noise is avoided, and thus frequently the patient falls asleep. Hydrotherapy may be employed, but always sudden changes of temperature of the water should be avoided.

The neurasthenic insomnia is due to the overexhausted state and nervous irritability. Absolute rest in bed, with nutritious food, and good hygiene will improve the neurasthenia and therefore the sleeplessness.

The greatest concern in bringing about a normal sleep is presented by cases of hypochondria.

The hypochondriac, with his endless complaints about his stomach, liver, kidneys, heart, brain, etc., invariably complains of insomnia. It is true that his sleep is interrupted, that he often lies awake for hours before he falls asleep; but it is also true that in the majority of cases the hypochondriac has a sufficient number of hours of sleep. Question him closely and he will tell you that his hypochondriacal thoughts are with him in his sleep; he dreams in his sleep of his supposedly diseased organs exactly in the same manner as in the day; his dreams are a continuation of his day thinkings. When he awakens he finds the thoughts to be the same, and as he worries about his health he naturally feels tired. He therefore conceives the idea of sleeplessness. The malady is of a psychic nature, and it is the psyche of the patient that has to be attacked in treating him for insomnia or for any other of his numberless complaints.

After the diagnosis is made, the patient should never be told that his insomnia is not genuine. On the contrary, as it is necessary for him to gain absolute confidence in you, you must, as a matter of rational therapeutics, impress upon his mind that you are in full sympathy with him, that his insomnia is dependent upon another nervous trouble which, when cured, will also remove the sleeplessness. I have already mentioned in another chapter the general method of managing psychic disorders. All our efforts should be directed to dislodge the fixed idea concerning alleged diseases of certain organs and replace it by normal ideas. This can be accomplished by gradual but persistent and tactful persuasion; the method must be modified according to the circumstances and to the intensity of the hypochondriacal anxiety. If we succeed in holding the patient's confidence, we can expect good results. General hygienic

and dietetic measures should never be forgotten, as we deal here with a special make-up of the nervous system and consequently with an especial predisposition to various nervous or mental disturbances. Avoid drugs as far as possible and use them only as a last resort.

The same principle is applicable to the treatment of insomnia in psychasthenics in whom various obsessions, phobias, doubts, and abulias disturb their sleep. Treat the mental disorders, of which insomnia is one of the manifestations.

Let us finally turn our attention to treatment of insomnia in insanities.

A deranged mind tormented by crowds of delusive ideas and hallucinations certainly needs first of all good sleep. Very frequently the latter is disturbed or totally absent; faulty conceptions are continuously being elaborated, or if they are already fixed, each subsequent idea formed upon the faulty original one becomes intensified when the patient's mind is not at rest for several hours out of twenty-four. On the other hand, progressive improvement and even recovery frequently result when regular sleep is obtained. It is one of the most important symptoms that alienists endeavor to combat in dealing with insanity.

The experience of the majority is in favor of *bed* treatment and *isolation*.

All forms of psychoses are greatly ameliorated by confinement to bed. The latter is particularly favorable in the agitated cases, in cases with restlessness and aggressiveness. The cases with depression, the mild cases of dementia, the paretics, and paranoiacs are also favorably influenced by rest in bed. In fact it has been my practice to apply this method at the beginning of treatment to every case of insanity if for no other reason than for obtaining good sleep. It has the most wholesome effect upon the latter as well as upon other manifestations. Hydrotherapeutic measures with general massage should always be added. The latter will have to be modified according to the degree of improvement, to the intensity of the affection, and to the individual predisposition. As to isolation, it is invariably beneficial. No case can be treated properly when not removed from the usual surroundings. In an asylum complete isolation has to be practiced in delirious and otherwise agitated cases. When the habitual sources of delusive thoughts are removed for a sufficiently long time, the state of anxiety or agitation gradually decreases and our daily observation shows a very marked improvement in sleep. When the latter is regular and not interrupted, other symptoms, generally speaking, improve.

In cases of deliria the task is more complicated. Insomnia is absolute. Bed and isolation are not sufficient. Balneation renders great service. The patient is placed in the bath-tub and kept there an hour, or two or more hours, until the agitation subsides. He is taken out and again replaced for the same length of time. In several instances I had to keep delirious patients in the tub as long as eight and even twelve hours. The results have been the most satisfactory. A light sedative, like bromides, administered simultaneously with the bath in doses of 10 grains every hour or two hours was a good adjuvant. As to the temperature of the bath, very cold should be avoided in mental diseases; tepid water is the most appropriate.

In some cases, if the prolonged baths with bromide failed to induce sleep, I had to administer hypnotics. Veronal with codeine, trional or sulphonal are the main drugs worth mentioning. Baths to be properly given require a special personnel, which cannot always be procured; some on the one hand are sometimes unwilling to send their relatives to institutions, and on the other hand they are too poor to engage the proper attendants. Under the circumstances hypnotics must be administered. I recommend, besides the above mentioned, chloral, paraldehyde, chloralamide, opium or morphine, hyoscine, scopolamine. A combination of chloral and morphine is particularly efficient in cases of delirium tremens. In some cases where other remedies failed, the latter gave me desired results.

Paraldehyde is an innocuous remedy, but has the disadvantage of inducing only a short sleep; the dose has to be repeated, and habit is thus easily established. Opium should also be avoided for the latter reason. Treatment of the agitation and insomnia represents in reality almost the entire active therapeutics of insanity; they are in fact the only conspicuous physical symptoms of insanity which the alienist can combat in an efficacious manner. These two symptoms cannot be separated; clinically they exist almost constantly, and their therapeutics is naturally the same.

In conclusion let me emphasize from the foregoing remarks that the most rational and therefore scientific treatment of insomnia lies in the knowledge of its direct and indirect causes, that physiological and psychic measures should always be given a sufficient trial; drugs should be resorted to in extreme and difficult cases. The possibility of drug-habit should never be ignored.

A SUMMARY OF THE RESULTS OBTAINED BY THE X-RAY TREATMENT OF EXOPHTHALMIC GOITRE.

PFAHLER, of Philadelphia, in the *New York Medical Journal* of October 24, 1908, tells us that there have been recorded in the literature at least fifty-one cases of exophthalmic goitre treated by the Roentgen rays. Of this number forty-two cases were followed by good results. In nine patients there was little or no improvement. In other words, good results were obtained in over seventy-five per cent of cases, with no risk to the patient and no great inconvenience. This is surely in marked contrast to the results obtained by other methods.

The number of cases treated is still small, but surely sufficient to justify further trial, since there seems to be nothing lost and a chance for much gain by the trial.

One author states distinctly that three of his patients received no other treatment. It is possible that others received no other treatment, but it is to be assumed that in most cases some internal treatment was used. Beck used the rays after surgery failed to produce satisfactory results, and recommends a combination of operation and Roentgen-ray treatment. Since, however, results followed so promptly after all other methods had failed, it seems folly to leave the best and least harmful method until the last. Good results showed themselves in some instances within forty-eight hours, and almost without exception within a month. In most cases almost complete recovery was obtained in from three to six months. It would seem, therefore, that the trial of the Roentgen rays for a month, with from six to a dozen treatments, could do no harm, and is likely to be followed by good results. If some improvement is not shown in a month it should be discontinued for at least a month.

The treatment should be localized upon the goitre, and may be carried to the point of producing a mild dermatitis, but not more. The first dose should not be excessive.

The permanency of the results is still a question, yet all the patients in which good results had been obtained had improved or remained well up to the time of the reports, which varied from a few months to three years.

The earliest and most noticeable improvement is the increase in weight. This is followed by improvement in all the symptoms. The two symptoms that remain longest are usually the enlargement of the thyroid and the exophthalmos. Pfahler concludes that decided improvement may be expected in about seventy-five per cent of cases.

This improvement consists of an increase in weight and strength, and gradual disappearance of the Basedow symptoms.

Some improvement should be noticed within a month, and after six to a dozen treatments.

When this treatment is properly given there appears to be no danger, and the author can see no objection to recommending this trial of a month in all cases.

EDITORIAL.

SCOPOLAMINE AND MORPHINE NARCOSIS IN LABOR.

An interesting article on this subject was contributed to the Proceedings of the Section on Obstetrics and Gynecology at the meeting of the British Medical Association held during the past summer. Krönig, of Freiburg, reported the results which he had obtained from the use of these drugs in a large obstetrical clinic.

After pointing out that some pain-relieving remedy is very much to be desired if it can be found, and that the use of general anesthetics has certain great advantages, he asserts his belief that scopolamine is a wonderful narcotic, particularly when it is combined with morphine, claiming that the patient, under these circumstances, is lulled into a sleep verging upon consciousness, during which the sense of pain is so distant or benumbed that suffering may be said to be entirely put aside.

He keeps the morphine and scopolamine in separate solutions. The scopolamine hydrobromide is used in the form of a 1/300-per-cent solution, and the morphine in a 0.1-per-cent solution; they are contained in transparent vessels protected from light and heat, and should the scopolamine solution turn cloudy it must be discarded. The first injection of the combined solutions is usually given when the individual pains last for thirty seconds and recur at intervals of four or five minutes. At this time the dose is 0.00045 of scopolamine to 0.01 of morphine. The effects of this injection are usually developed in from half to three-quarters of an hour, the patient becoming sleepy and slumbering during the intervals between the pains, awakening when the pains return. At this time, or about an hour after the first injection, a second injection is given of scopolamine without morphine, the second dose being slightly smaller than the first. Half an hour later the patient's consciousness is tested by showing her some object, and then a short time afterward showing it to her a second time, when she is asked if she has seen it before. If she recognizes it, it is considered that the desired state of unconsciousness is not yet attained, and that another injection of scopolamine is essential. Half an hour later the test is applied again, and she may be asked how many injections she has had. If she cannot remember the first one, or the one she received half an hour previously, it is considered that her perceptive sensations have been sufficiently benumbed.

It is manifest from this description that this method is not applicable to quick labors, however valuable it may be in primiparæ or in cases which have slow labor, and Krönig admits that the ability of determining the exact condition of the patient requires "practice, experience, and tact." The chief point is that the scopolamine is used by itself at intervals of half an hour until sensation is obtunded. Patients while in a condition of semisomnolence usually fall into a deep sleep in the intervals between the pains. In other words the pain is, as a matter of fact, momentarily perceived, but it is a noteworthy fact asserted by Krönig that after this so-called "dawning sleep" the woman awakes post-partum perfectly happy, and declaring she has felt nothing. Krönig also states that women who have had childbirth experience without scopolamine invariably state that they are very much better off when scopolamine has been given. These conclusions, it will be remembered, are in accord with those of Gaus, published some time ago, and to which reference has been made in the THERAPEUTIC GAZETTE.

As an addition to this treatment Krönig states that during the last few months he has gotten still better results by causing the patient to inhale 5 cubic centimeters of ethyl chloride at the moment when the child's head is born, since at this moment

the "amnesia" produced by the scopolamine is sometimes inadequate. He also states that more recently he has combined a small dose of veronal with the morphine and scopolamine at the very beginning of the labor, the veronal of course being given by the mouth, usually in the dose of about 3 grains, as larger doses were found not to be advisable.

Another point, which Krönig thinks is very important in the carrying out of this method of treatment, is the external surroundings of the patient. She should be protected from sensory disturbances, such as loud noises, bright lights, or other disturbing factors which may prevent the "dawning sleep" which he endeavors to produce. In institutions this is a factor to be particularly looked after.

As Krönig's statements are based upon 1700 cases, they certainly possess value, the more so as he indorses Gaus's assertion that the method possesses no drawbacks for either mother or child. He asserts that the experience of other obstetricians to the effect that the use of these drugs causes atonic hemorrhages must be due to incorrect doses, and even goes so far as to claim that the loss of blood in a labor under scopolamine and morphine is less than in ordinary labor. Further, he does not consider that organic heart trouble is in any sense a contraindication to the use of this plan, and although two deaths occurred during or soon after confinement in his 1700 cases, he claims that neither of them was in any way due to the use of these drugs, one being the result of a fatal hemorrhage arising from placenta previa, and the other being a condition of narrow pelvis in which operative interference was refused, the husband of the patient attempting to kill the physician who suggested it. Krönig believes that the length of labor is only slightly increased by this method, the increase not being greater than half an hour, and that in 350 cases occurring in private practice, the patients having delicate nerves, he has never had to apply the forceps.

Although a trace of scopolamine appears in the urine of the new-born child after its administration to the mother prior to the labor, it entirely disappears from the secretions after the lapse of a few hours and is in no way deleterious in its after-effects. According to his observations only about 10 per cent of the children of mothers treated in this manner came into the world in a state of partial apnea, which is easily relieved by mechanical stimulation, such as massage. Indeed, he asserts that the mortality of children in birth has been diminished by this plan of treatment. To meet the objection that the mortality subsequent to labor on the part of the children is materially increased, he states that observation during the first year of life has proved this to be incorrect.

From a paper upon the same subject read at the same time by Dr. Buist, we learn that he has freely employed this scopolamine-morphine method in private and hospital practice as a routine method, and that while caution must be used in the dosage, this plan is capable of "saving the physician many a worrying day and weary night," and the patient much restlessness and pain. Indeed, Buist thinks that operative deliveries are much less frequent under its use, although his cases numbered only 65, and therefore have not the statistical value of Krönig's collection. This number has however led him to heartily indorse the plan, and he lays down the rule that whenever the patient is distressed by the pains, and we expect the labor to last more than an hour, an injection of hyoscine and morphine should be given, and if it still drags on and promises to last a number of more hours, the injection should be repeated soon enough to alleviate the suffering. Buist also states that in 30 other cases in hospital practice his assistant has achieved equally good results.

McNaughton-Jones reports 28 cases of gynecological operations in which scopolamine, morphine, and chloroform were employed, the patients ranging from twenty

to seventy-one years, and the operations lasting from less than an hour to over two hours. The pulse was usually considerably slowed, but no disagreeable results have been noticed, and no untoward postoperative effects have developed. In other words, McNaughton-Jones employs scopolamine and morphine with the object of diminishing the quantity of chloroform which is to be used.

Buxton, the well-known anesthetist, also stated that when scopolamine and morphine are used in conjunction with chloroform the conditions differ somewhat from those which exist in patients who receive morphine and chloroform, the patient passing very quietly into a placid sleep. It is a noteworthy point that when the conjunctival reflexes are not abolished true anesthesia appears to be present and muscular relaxation is complete. He also states that invariably he uses oxygen with the chloroform, and thinks it a valuable adjuvant.

PATHOLOGICAL STATES WHICH MUST BE CONSIDERED AS NORMAL SO FAR AS THERAPEUTICS IS CONCERNED.

In many instances of disease it is important that the physician should carefully determine whether certain abnormal manifestations indicate therapeutic interference, because not rarely these manifestations are attempts of the body to adjust itself to new conditions. It is now better recognized than ever before that an abnormally high arterial tension throws an immense amount of extra work upon the heart, and that in many instances remedies designed to reduce this degree of blood-pressure will do more good than remedies which are used to increase the power of the cardiac muscle. On the other hand, it is becoming more and more recognized that high arterial tension dependent upon arterial change may, unless excessive, be considered a normal condition in persons of advanced years, since it is only by increased blood-pressure and increased activity of the heart that important organs are enabled to obtain a sufficient supply of blood through less elastic, or more resistant, arterioles. In other words, the reduction of arterial pressure in many persons above fifty years of age, to that degree which is usually classed as normal, may be productive of evil rather than of good results, the patient having established in his arterial system what may be considered a new standard which is essential to life in view of the arterial changes which have occurred.

The discovery by means of physical diagnosis of the fact that there is cardiac hypertrophy in such a case does not show that the heart is in an abnormal state which requires treatment, but rather indicates that its increase in size and power is designed by nature to meet the new demands which are necessary if a condition of approximate health is to be maintained. So, too, in many of these cases, particularly after exercise, an examination of the heart may reveal some mitral insufficiency which is not necessarily indicative of valvular disease, and which does not require the administration of digitalis, but which is essentially a safety-valve condition whereby an overworked left ventricle, finding it difficult to pump all of its contents into the aorta, finds relief in mitral regurgitation.

In other words, the question raised by Sir Richard Douglass Powell in a recent address is worthy of our careful consideration. He asks, "Is old age disease?" It seems to us that the answer to this question must be an emphatic negative, and that we must take care that many of the changes which are coincident with old age are recognized as being proper at that period of life rather than evidence of abnormalities which require active interference. Of course, when high arterial tension becomes excessive and the heart breaks down because of the stress under which it labors treatment is advantageous. With our present extraordinarily accurate methods of diagnosis we are able to discover variations from the normal unknown to our forefathers, and we must be careful that we do not attack them too vigorously.

THE VALUE OF VERATRUM VIRIDE IN THE TREATMENT OF ECLAMPSIA.

The very wide-spread employment of veratrum viride by many practitioners, particularly by those who live in the southern portions of the United States, for the purpose of combating puerperal eclampsia has led many others to employ this drug, although it must be admitted that our knowledge of the underlying conditions of eclampsia and of the physiological action of veratrum viride make its use largely empirical.

The most recent noteworthy contribution upon this subject, with which we are familiar, is one which is made to the *British Medical Journal* of September 19, 1908, by Mangiagalli, of Milan, who, after pointing out that this remedy has been employed ever since 1836 in the United States for the purpose under discussion, approves of its use, and states that a paper presented to the International Congress of Obstetrics in Geneva in 1896 by Theophilus Parvin, the late Professor of Obstetrics in the Jefferson Medical College, led him to employ it. He now reports his personal experience founded upon 100 cases covering the space of a little over ten years. He believes the method of administration of veratrum viride for this purpose has much to do with the results which are obtained. At first he used Squibb's fluid extract, but more recently he has employed the extracts made by Parke, Davis & Co., Merck, Erba, and Zambeletti.

He firmly believes that the only satisfactory method of administration is by means of the hypodermic needle, and that as long as the blood-pressure is high and the pulse full, strong, and tense, it is necessary to continue the administration of the remedy. He thinks that small and repeated doses are to be preferred to large ones given at long intervals, since in this way good results are obtained, and danger is eliminated. He also indorses the view held by many American practitioners that the pulse must be kept, if possible, below 80 beats per minute, but that when the pulse is rapid and small, and arterial pressure low, veratrum viride must not be employed, a conclusion which we reached years ago, and have always taught since.

In his clinic Mangiagalli uses the sphygmomanometer to determine whether veratrum viride should be given, and employs the drug whenever the pressure exceeds 160 millimeters, the dose varying from 5 to 10 minims of the fluid extract. In his experience the veratrum viride not only lowers the blood-pressure but modifies or stops the convulsion, although it cannot be claimed to be an antidote to the poison. In his 100 cases, 71 were in primiparæ; three were moribund when admitted to the hospital and died in from a few minutes to two hours after their admission. In three others evident symptoms of cerebral hemorrhage were present and were found afterward at autopsy. Excluding these six cases he finds that out of the remaining 94 only six deaths occurred, the mortality being therefore 6.34 per cent, and if all the other cases are included the mortality does not amount to more than 12 per cent, as compared to a mortality of 23.68 per cent obtained by him in the previous ten years, before the use of veratrum viride. The statistics of others who have used veratrum viride vary from 16 to 37 per cent.

Mangiagalli also reports an interesting case of extrauterine pregnancy in the eighth month complicated by eclampsia, in which the fits ceased completely after the use of veratrum viride and a living child was extracted by laparotomy, which would seem to indicate that the drug was not deleterious to the fetus. In concluding his paper Mangiagalli asserts that veratrum viride is efficacious in the treatment of this condition, and that most probably its efficiency is dependent upon its ability to lower arterial tension.

These observations are interesting in connection with the article on this subject which appears in the original columns of this issue of the GAZETTE.

THE TREATMENT OF SKIN AFFECTIONS.

To those who have not followed the recent pathology and therapeutics of skin affections, it would seem that practically no advance had been made in so far as cure of patients is concerned, the choice of remedies being subject to a kaleidoscopic and apparently irrational change, such change being always based upon the inefficacy of all.

Hartzell (*Journal of Cutaneous Diseases,* November, 1908), in commenting upon the relation of modern dermatology to pathology, notes that the parasitic theory of eczema has exerted and still exerts a very great influence in the local treatment of this affection, since there is a decided tendency to use such local remedies as are known to destroy or inhibit the growth of the microorganisms. Moreover the toxemic theory of disease has, by influencing the treatment, greatly bettered prognosis. He notes that we treat psoriasis to-day as it was treated one hundred years ago, by giving arsenic internally, based on experience.

White (C. J.) thus briefly summarizes our knowledge of the seat and nature of the changes in cutaneous diseases in a quotation from Darier's table. In the stratum corneum we find the results of superficial trauma and the invasions of the acarus scabiei, microsporon furfur, microsporon minutissimum, tinea tricorphytina, and tinea favosa. In the stratum corneum, lucidum, granulosum, and upper spinosum we place the lesions of the hyperkeratoses, including callus, clavus, akrokeratoma, ichthyosis, pityriasis rubra, pilaris, lichen pilaris; and of the parakeratoses, embracing psoriasis, eczema seborrheicum, eczema squamosum, dermatitis exfoliativa, pityriasis simplex, and finally the sequelæ of burns and vesicatories. In the stratum lucidum, granulosum, and upper spinosum we locate the dyskeratoses, comprising psorospermosis, molluscum contagiosum, and Paget's disease. In the stratum lucidum, granulosum, and entire spinosum we note the acantholytic processes—*i.e.*, eczema vesiculosum, herpes simplex, herpes zoster, prurigo, dermatitis herpetiformis, hydroa æstivale, impetigo, varicella, and vaccinia. In the lower rete we meet the hyperacanthotic changes—lichen planus, lichenification, verruca, vegetations, and acanthosis nigricans. In the stratum germinativum we encounter the dyschromias — albinism, melanoderma, chloasma, vitiligo, and lentigines. And lastly, in the epidermic diseases and affecting the layer as a whole we find the tumors—adenoma, epithelioma, keratoma, papilloma, and the cysts.

Coming to the corium we know that the papillary layer is the principal seat of the congestions, erythemata and roseolæ; of the edemata, especially urticaria; of the acute classes of dermatitis, including erysipelas, ecthyma, ulcus durum, acne, and folliculitis of the infectious type and the toxicodermata; and finally of the chronic group of dermatitis—tuberculosis, lupus erythematosus, syphilis, lepra, granuloma fungoides, elephantiasis, and scleroderma. We know that throughout the corium proper we must look for the presence of cicatrices and the various degenerations to which the skin is heir—senile, colloid, myxedematous, and elastic. We know that the hypoderm is the seat of the deep hemorrhages of purpura, of hydradenitis, and of syphilitic, tuberculous, and leprous gummata. And finally, we know that throughout the corium as a whole we may find the tumor formations of mollusciform nævi, sarcoma, fibroma, neuroma, myxoma, xanthomata, and lipoma.

In addition to these comprehensive topographical data we have the time-honored, though somewhat modified, pathological classification of Hebra, which separates our recognized diseases into hyperemias, inflammations, hemorrhages, hypertrophies, atrophies, new growths, neuroses, diseases of the appendages, and parasitic affections.

In regard to the drug treatment of skin diseases and their physiological action, White states that the chief methods have been by external means, and long experience has taught us that certain drugs, especially arsenic, mercury, and the salicylates, tend toward stimulation of cells, and dermatologists have employed these drugs

with varying success in many chronic conditions, such as eczema, psoriasis, dermatitis exfoliativa, lichen planus, acne, chronic urticaria, and sarcoma.

The iodide group has proved its marked ability to stimulate tissue changes and accomplish the disappearance of certain specific productions in the skin, notably those of syphilis, blastomycosis, and actinomycosis.

Many drugs, such as bismuth, salicylic and carbolic acids, B-naphthol, creosote, salol, ichthyol, phosphate and bicarbonate of soda, have antiseptic and antifermentative qualities which render them useful in those affections of the skin which we think are due to autointoxication.

To combat dermatoses which we associate with nerve disturbance, among which we include lichen planus, pemphigus, dermatitis herpetiformis, chronic urticaria, and pruritus, we administer quinine with some success.

Against the hyperemia of acne vulgaris, acne rosacea, and lupus erythematosus we employ ichthyol, ergot, and the antiseptics, carbolic acid, etc.

To stimulate the secretion of sweat pilocarpine has proved useful, but whether this drug acts upon the nerve terminals or upon the glands themselves, pharmacologists are still in doubt.

To control excessive sweating, on the other hand, atropine has proved our most successful medicament.

Diuretics and cathartics are of unquestioned value in the treatment of such diseases as acute eczema, dermatitis venenata, urticaria, and the acnes; and potassic acetate and magnesium sulphate stand almost preëminent in their respective classes.

This astonishingly small list of useful drugs indicates our therapeutic knowledge of a few years ago, and of this mere handful of somewhat valuable remedies only one drug can be called a specific.

In external medication in dermatological therapeutics the list of time-honored drugs is very large, but once more it must be confessed that the number of really specific applications is distressingly small.

As detergents we have had soaps, oils, neutral fats, and liquor carbonis detergens. To soothe and protect the skin we have relied on oxide of zinc and calamine, bicarbonate of soda, subnitrate of bismuth, subacetate of lead, talc, and acetate of aluminum. As astringents tannic acid, alum, bismuth, boric acid, acetate and oleate of lead and zinc have been our standbys. To combat itching carbolic acid, chloral, camphor, and menthol have proved their usefulness, some by actually depressing the nerve sensation and others by substituting a different stimulation. To produce anesthesia carbolic acid has been our mainstay.

For their stimulating effects we have employed tar, sulphur, mercury, green soap, nitrate of silver, carbolic acid, iodine, balsam of Peru, chrysarobin, cantharides, capsicum, and croton oil.

In the caustic class we have relied upon salicylic acid, bichloride of mercury, tincture of iodine, resorcin, mustard, and nitrate of silver to produce a mild effect, and upon carbolic, glacial acetic, trichloracetic, chromic, nitric, and sulphuric acids, arsenic, chloride of zinc, and the hydrates of potash and of soda to produce a deeper action; while as an immediate destroyer of tissue we have used the actual cautery, either electric or Paquelin.

As keratolytics, salicylic and boric acids, alkaline soaps, resorcin, liquor carbonis detergens, and the milder alkaline caustics have established their worth.

As reducing agents, tar, in the form of pix liquida or of oleum picis, oil of juniper (cadini), oil of birch (rusci), ichthyol, creosote, resorcin, sulphur, aristol, chrysarobin, pyrogallic acid, permanganate of potash, and B-naphthol have all received well-merited recognition.

Carbolic and boric acids, mercury, sulphur, copper, sulphonaphthol, iodoform, B-naphthol, styrax, balsam of Peru, and chrysarobin have all answered their purposes admirably as effective superficial antiseptics and parasiticides, but when called upon to destroy deeper-lying organisms they have failed lamentably.

Such, says White, is the story of the past,

and these many drugs plus electricity, massage, and the knife have constituted our therapeutic armamentarium up to within a few years. For the last ten or fifteen years, however, the science of dermatology has not remained stationary but has advanced *pari passu* with all other human activities, and during this prolific epoch many new forms of treatment have been discovered and have rendered invaluable service in our successful struggle with disease.

These innovations and discoveries are enumerated as follows: (1) New drugs; (2) radiotherapy; (3) electrotherapy; (4) actinotherapy; (5) hydrotherapy; (6) organotherapy; (7) psychotherapy; (8) congelation; (9) hyperemia; and lastly (10) the wonderful and pregnant theories and applications of the various sera. Surely this list is an impressive witness to the mental activity and fertility of modern medical men.

In regard to the new drugs for external administration comparatively few of the synthetic compounds have established their superiority over the older well-tried medicaments. Of the aniline dyes a few, such as methylene and pyoktanin blue and scharlach R., have proved of distinct assistance in cleansing foul or indolent ulcers and in stimulating granulation in the trying ulcerations of scleroderma, Raynaud's disease, and other trophic disturbances, and in the arteritic sores consequent upon senility or overexposure to *x*-rays.

Of the newly compounded dusting powders, aristol, nosophen, and tannoform seem to be the most satisfactory substitutes for iodoform in drying up serous or purulent ulcers or the excessive secretions of hyperidrosis.

In seborrhea, euresol replaces resorcin to great advantage since it is less irritating and discolors gray hair but little.

Euresol, combined with corrosive sublimate, formic acid, and alcohol, constitutes the best hair-wash in the cure of dandruff.

Captol is another useful adjuvant in the struggle against seborrhea. Pilocarpine has won a well-recognized place for itself in the treatment of alopecia, while trikresol from its very strength proves its usefulness as a substitute for croton oil in obstinate cases of alopecia areata. Painful ulcer is greatly benefited by orthoform. This powder, applied in ointment form to a broken surface, does certainly alleviate suffering, but in susceptible individuals it not infrequently exerts a necrotic action on the tissues, so that one must be careful in its use.

Of the internal new drugs calcium chloride has been found serviceable in acute circumscribed edema, in pernio, purpura, and urticaria. This because these conditions are attended by a diminished ability of the blood to coagulate, which is corrected by the drug.

Blastomycosis is efficiently treated by iodide of potash, as is actinomycosis. Mercury appears to be the most efficient medicament in lichen planus.

After an exposure to syphilis the inunction of the penis with a 30-per-cent calomel ointment has been known to abort an infection of the disease in one human subject at least, and Metchnikoff, Hallopeau, and others have found this simple procedure absolutely trustworthy in many animal experiments. It is stated that in the treatment of syphilis the subcutaneous method of mercurial administration has almost superseded all others on the continent of Europe, and to a certain extent in America, in rebellious and in emergency cases. In Europe, particularly, investigators have found that combinations of salicylic acid and of arsenic with mercury seem to exert a more powerful action on the cause of the disease. This discovery has led to the use of enesol, the salicyl-arsenate of mercury. In White's own experience injections of this sterile liquid have aborted several fresh roseolæ within a few days. Enesol is painless and extraordinarily rapid in its action, nor is it followed by infiltration.

White has not been impressed with the efficacy of thiosinamin or fibrolysin. From his personal standpoint he regards the *x*-ray as the greatest single blessing that has ever been bestowed upon dermatology, with the exception of mercury. As to the *x*-ray burn, since it is known that the frightful ulcerations are due to endarteritis and con-

sequent necrosis of tissues, he holds that the attempt to cure such lesions by applications is futile. The only method to be followed is a complete extirpation of the diseased focus, followed by a skin graft. In moderate doses the rays act as a stimulant to metabolism and as an anodyne, whilst in heavy or long-continued amounts they produce destruction. Moreover, there is a striking rise of the opsonic index after exposure of the diseased skin to the *x*-rays. As to the high-frequency current, this produces a transient or more permanent hyperemia, hence acts as a direct stimulant. In chronic ezcema, acne vulgaris, it may act as a direct stimulant or may exert a destructive action, as in its use against warts, nevi, molluscum contagiosum, and lupus vulgaris. At times it is used as a sedative, as in pruritus. The use of a static current is credited with some brilliant results in the treatment of lupus vulgaris. Electrophoresis, or the introduction of drugs under the skin from the negative or from the positive electrode of a battery, using ten to twenty milliamperes of current for ten to thirty minutes, seems to be particularly applicable to follicular troubles such as sycosis, ringworm, and cheilitis exfoliativa.

As to actinotherapy, many forms of light depend for their action upon the actinic rays —those at or beyond the violet end of the spectrum—but unfortunately these same rays have the least penetrative power. These rays stimulate cell nutrition, cause inflammatory reaction, and destroy bacteria at a depth of 1.5 millimeters, if the tissues have been exsanguinated. Compared with *x*-rays these emanations have greater bactericidal qualities, but the *x*-rays can penetrate deeper and can be used effectively over far larger surfaces.

As to hydrotherapy, including treatment by light baths, White strongly commends these in cases of wide-spread eczema and psoriasis, pemphigus, dermatitis herpetiformis, scleroderma, and dermatitis exfoliativa.

As to organotherapy, in addition to the accepted facts concerning the relation of the thyroid and of the suprarenal glands to affections of the skin and subcutaneous tissue, White calls attention to the relation of atrophy of the thyroid gland to pityriasis rubra, adenoma of the thyroid to pemphigus foliaceus, adenocarcinoma of the thyroid to dermatitis herpetiformis, lymphosarcoma of the suprarenal capsules to pityriasis rubra of Hebra, and atrophy of the same organs to erythrodermia exfolians. He further states that the knowledge that adrenalin has the physiological task of mobilizing the sugar from the liver and probably also from the other tissues may mean much to us in future in the treatment of cutaneous diabetes.

The practical application of a number of ingenious theories which White cites is to the effect that thyroid extract restores the dry, coarse hair, the wizened skin, and the brittle nails of myxedema to comparative health, and again that injection of adrenalin contracts capillaries and is useful in the treatment of erythema multiforme, urticaria, and purpura.

As to the psychotherapy, White states that he inclines much to its efficacy.

Congelation by means of ethyl chloride and carbon dioxide now easily obtains, or by liquid air produces changes incident to the degree of refrigeration. Freezing is most quickly accomplished, most devitalizing and deepest in the case of liquid air.

White states that the application of ethyl chloride in severe cases of herpes zoster is a godsend. The intolerable pain is allayed by freezing the spinal seat of the disease twice daily, and by local chilling of the cutaneous lesions when discomfort demands this procedure. He also states that there is no better treatment for verruca, herpes zoster, or nevus than by the properly applied refrigerant methods.

As to hyperemia by the Bier method, White states that the results he has seen have never convinced him of the superiority of this method of treatment over other well-recognized ones.

Carbuncles, furuncles, and coccogenic sycosis have yielded to the staphylococcic serum, though exceptions are noted to this rule.

Marmorek's antistreptococcus serum in 10 Cc. doses has been used with a certain degree of success in erysipelas, though

White holds that the dermatological world places its greatest reliance on ichthyol. Purpura has apparently been benefited by transfusion of normal blood, and also by subcutaneous injection of fresh rabbit serum.

This résumé of modern dermatological therapeutics has been extensively and in the main verbatim quoted. White has given with brevity and lucidity his own therapeutic deductions, based on wide clinical experience and thorough knowledge of all that is modern in the treatment of skin diseases.

THE TREATMENT OF GONORRHEA.

It may be truly stated that in spite of the multitude of remedies vaunted by individuals as specifics in the treatment of gonorrhea, or as producing an amelioration of the severity of symptoms and shortening the course of the disease, there is not a single method which has so thoroughly proven itself as to be universally accepted as standard. Among the Germans it is probable that an active and vigorous treatment from the first is that which receives most support. The efficacy of such treatment in large numbers of cases remains to be proven. It is certainly a fact that the American physician recognizes in his compatriots who have been to Germany for a course of study, and who have, unfortunately, acquired gonorrhea which has been subject to the routine treatment there practiced, a persistence and an inveteracy of symptoms unusual among those treated by other and gentler means. There is a large, perhaps a growing, school who utterly eschew local treatment until the acute symptoms have subsided. Systemic irrigation, at one time widely popular, still has its faithful adherents. It has to an extent been abandoned because of its inefficacy and because of the trouble it entails.

There are certain fundamental principles of treatment universally recognized as desirable. Among these are a fair amount of bodily rest during the acute stage, a bland condition of the urine secured by great moderation in diet and the ingestion of large quantities of water, the avoidance of sexual excitement and of alcohol. Many practitioners now believe that there need be struck from the diet none of the wholesome articles ordinarily taken, such, for instance, as red meat, but that the food should be taken in very limited quantities, should be chewed thoroughly, and should be selected with due regard to the idiosyncrasy of the individual stomach. Regularity of the bowels and the avoidance of chilling are also regarded as of prime importance.

As to the use of medicaments, alkaline diuretics are almost universally accepted as serviceable, to the point of rendering the urine almost neutral. Further, it is regarded as desirable that the patient should empty his bladder as soon as he experiences the desire to do so.

The moment the question as to the choice of drugs supposed to have a specific action arises, there is a wide divergency of opinion. Perhaps salol as a urinary antiseptic and urotropin receive the most universal acceptance. Of the balsams, sandalwood oil or its derivatives is undoubtedly the most efficient, copaiba following next in order, and cubebs being not only the most expensive but the least serviceable.

As to the local treatment, perhaps the most satisfactory paper which has appeared recently is that of French dealing with gonorrhea in the army (*Journal of the Royal Medical Corps,* November, 1908) and systematizing the results of an enormous experience. French states that he has tried in the past fifteen years most known methods amongst 5000 in-patients. In the initial stage there is a tendency to dispense with chemical irrigations and injections in favor of more conservative methods, with the best results. His method adopted as a routine practice at Woolwich from 1905 to 1908 is as follows: For about seven to ten days the patients are put to bed on a milk or farinaceous diet with five pints of barley-water, porridge and cocoa as extras. During this period free saline purgatives are administered every morning and an alkaline mixture containing potassium nitrate 1 ounce, potassium bicarbonate 10 drachms, tincture of hyoscyamus 10 drachms, and infusion of

buchu 2 pints. No injections or irrigations are given. After ten days on an average the previously creamy, yellow, purulent discharge becomes thinner, whiter, and mucopurulent. The patient is then allowed to get out of bed and is given a convalescent diet. When the two-glass test shows that the inflammation is both anterior and posterior, irrigation is usually not practiced for four weeks, and is at once discontinued if the posterior symptoms become suddenly acute. Anterior irrigations commence on the average case about the sixth day, a pint at a time being applied two or three times daily. The posterior irrigations are used never more than once a day, preferably in the morning. It is usual in posterior cases to give a second anterior irrigation in the afternoon. A solution of permanganate of potash 2 grains to the ounce, and one ounce of this to every pint of lukewarm water (98° F.), is ordinarily used as an irrigation. The strength is gradually increased. The pressure is about 8 feet, and a double-channel irrigating nozzle employed. After the urethral discharge has ceased, the urine, as evidenced in the urine glasses, gradually becomes clear, and threads, in average cases, are no longer visible after six weeks. The man is then placed on beer for three days, when if the urine still remains clear and the gonococcus is not demonstrated with the microscope, he is dismissed from the hospital when ten to fourteen days free from suppuration; but never under six to seven weeks if admitted with acute gonorrhea.

French states that the only really scientific treatment which curtails the gleet stage in chronic cases is to illuminate the urethra by means of the electric urethroscope, any time after the twentieth day of disease, and use local applications of nitrate of silver to the granular patch, which is present at some time in some degree in every case of freshly contracted gonorrhea. It is usually exquisitely tender, is readily seen, and is mostly situated within four inches of the meatus urinarius on the floor of the urethra. When the gleet is due to chronic inflammation, examination should be made for stricture and for enlarged prostate. If the latter condition exists, massage of the prostate has been suggested, and iodide of potassium is sometimes of benefit.

Even though there be no obvious discharge, if the meatus is red and glazed discharge is present in spite of the man's assertion to the contrary. It is true that a large number of gonorrheal cases naturally get well after five to seven weeks without any local treatment. French states that he was astonished as a result of investigations conducted in regard to several hundreds of cases occurring in India, where no injection or irrigation whatsoever was used. He found that the ordinary duration of the urethral discharge was about six weeks. In regard to the use of urotropin and salol as urinary disinfectants, French states that the advantages in practice are not obvious.

Finger is quoted to the effect that six weeks is the average period of gonorrheal discharge, and that injections do not curtail this period.

In so far as relapses are concerned French apparently proves his contention as to the necessity of prolonged observation and the continued treatment of patients apparently cured. He notes that of 195 cases of gonorrhea admitted to the hospital in 1907 there were only two cases of relapse, although most of the troops were mounted, and contrasts these results with those obtained at other hospitals where the patients at once returned to active duty without restriction.

In this excellent summary of treatment in which the surgeon has full control of his patients there is no mention made of the abortive method, which if practiced in the very beginning of infection is undoubtedly efficacious at times. There is, apparently, no systematized effort at supplanting the gonococcal irritation with one of chemical nature and thereby eliminating the bacteria which have obtained lodgment beneath the surface of the urethra. There is an utter rejection of the antiseptic and balsamic treatment which receives very general support. There is a belief implied, if not expressed, that a considerable percentage of

urethritis will remain anterior if untreated by injections, a belief not well founded.

A tabulation of the percentage of cases remaining uncured after six weeks, or the percentage exhibiting such complications as seminal vesiculitis or epididymitis, or vasitis, or the cases showing systemic affection in the form of arthritis, etc., would afford a valuable means of testing the efficacy of the treatment employed.

The data contained in this paper are not adequate to cast discredit upon either the early injection or irrigation treatment of gonorrhea, or the use of urinary antiseptics and of balsams, providing these measures are employed with discriminating judgment. Perhaps the lesson which French's contribution most accentuates is that, given a hyperacute inflammation, good cannot possibly accrue from adding to it.

REPORTS ON THERAPEUTIC PROGRESS.

THE VALUE OF TAKING THE SPECIFIC GRAVITY OF THE BLOOD DURING SALINE TRANSFUSION IN CHOLERA.

In the *Indian Medical Gazette* for October, 1908, O'MEARA states that the blood in cholera is profoundly changed in almost every conceivable way, chemically, physically, and microscopically. The alkalinity is much diminished, the coagulability is changed, cells and albumin are increased, there is a rise in the number of red blood-corpuscles and a corresponding rise in the percentage of hemoglobin, but a serious diminution in the amount of oxygen; there is a leucocytosis.

The outflow of constituents is so great that the specific gravity is enormously increased (even to 1078); the outflow of the elements appears to take place in a regular order; the water of the serum transuding before the solids, the inorganic before the organic solids, the chlorides before the phosphates, the salts of soda before those of potash.

There is a complete reversal of the normal osmotic flow instead of the normal absorption from the intestine into the vessels and from the vessels to the tissues, there is an endosmotic transit of fluid from the tissues into the blood-vessels, and an exosmotic outflow from the vessels into the alimentary canal, hence the profuse watery motions and vomiting.

At the time that transfusion is generally performed this abnormal flow has ceased, not because osmosis has regained its equilibrium, but because the tissues have been drained dry and the specific gravity of the blood has so increased that an effusion from the blood into the intestines has become a physical impossibility. If the circulation is now rapidly diluted with a 0.625 saline solution, a point is soon reached at which a flow from the blood into the intestine is again possible, with the recommencement of watery evacuations as a result, and on this depends the fact that saline transfusion as usually performed is so often a failure.

If, however, the saline transfusion be given very gradually, and the specific gravity of the patient's blood slowly brought to the normal instead of being suddenly diluted, the endothelium of the vessels will have time to again take up the fluid which has been drained from its protoplasm and regain its normal function, then when the specific gravity of the blood has been sufficiently reduced, osmosis will recover its equilibrium, and the normal flow from the vessels into the tissues will be reëstablished.

The point the author would especially urge is that more accurate and better results can be obtained during intravenous injection of salt solution in cholera by examination of the specific gravity of the blood rather than by observation on the blood-pressure, for the following reasons:

1. The whole treatment of the disease turns on the increased specific gravity of the blood.

2. An enormous quantity of saline may be transferred into the vessels without any marked rise of blood-pressure.

3. The peripheral resistance is much increased in cholera, not only by changes in the endothelium of the vessels, but by chemical changes in the blood, diminution of oxygen, etc., even independently of the increased specific gravity.

4. The blood-pressure in cholera is liable to sudden and considerable variations apart from transfusion, for which there seems to be no explanation.

5. The blood in cholera being deficient both in water and salts, transfusion may temporarily raise the blood-pressure with fluid without increasing the specific gravity with salts.

6. By transfusion gradually regulated by taking the specific gravity, the renal epithelium has a much better chance of recovering its function, and therefore the present large mortality from uremia will be considerably reduced, if not abolished, as the author has not had a death from uremia by this method.

The most rapid and convenient method for ascertaining the specific gravity of the blood in cholera is that of Hammerschlag.

A urinometer glass is filled with a mixture of chloroform and benzine, having a specific gravity of about 1060, and a drop of blood is introduced into the mixture by means of a pipette. If the drop of blood tends to rise toward the surface more benzine is added from a pipette, and if it tends to sink more chloroform. By successive additions of chloroform and benzine a mixture is obtained in which the blood remains suspended without moving either up or down; when this point is reached the specific gravity of the mixture is taken with an accurately graduated hydrometer, and the result represents the specific gravity of the cholera blood.

The mixture should be kept stirred with a glass rod while the chloroform and benzine are being added. Benzine 40 Cc. and chloroform 20 Cc. give a specific gravity at the bedside.

The specific gravity in one of his cases was as high as 1078. The blood was so inspissated that it did not flow from the vein when opened for transfusion. The patient was a very small Bengali woman, and could not have weighed more than 5½ stone, but it was necessary to very gradually transfuse as much as 6¾ pints. She made an excellent recovery. The author has now done this operation 29 times during the last 4½ years with three deaths. Out of the three deaths one was from cerebral hemorrhage on the sixth day; one was a very severe case and transfusion was too late; in the third case he was much pressed for time and transfused too rapidly, the patient passing urine within 2½ hours of transfusion being commenced.

As regards the time for transfusion, the writer states that he never transfuses until the pulse has entirely disappeared from the wrist, when it should be gradually commenced. From recent experience, however, he does not think this is a safe rule with European patients, and more especially with children, but has always found it so with natives. Injecting saline fluid into the cellular tissues is nothing less than criminal, as if the patient really requires transfusion the specific gravity of the blood is so high that the absorption of fluid from the cellular tissue is almost a physical impossibility; while on the other hand, if he is able to absorb it he would do so more rapidly and effectively from the stomach or rectum if very small quantities are carefully administered at a time. Great care is required in this direction, the author asserts, as he has more than once seen a case of cholera in which, though fluid had been administered carefully and in small quantities by the mouth, the patient was unable to absorb it, with the result that the stomach became overdistended, vomiting, sudden collapse, and rapid death resulting.

The vitality is so depressed in cholera that there is the greatest danger of cellulitis from saline injection into cellular tissue, no matter how carefully the operation is performed; he has seen a case, he states, in which the whole of both axillæ and both groins sloughed out, and another in which

the whole circumference of the thigh sloughed from the groin to the knee, and these cases are of course almost invariably fatal.

In all severe cases that have required transfusion he is very much against giving any food by the mouth for at least seventy-two hours, and in some cases he has not given it for five days, and then only very gradually, as the power of absorption of nutrients is not regained until long after the absorption of water. These patients, like infants with summer diarrhea, will do quite well if fluid is not withheld, but sips of very dilute barley or boiled water are frequently given, and they are kept warm.

In cases seen early it is often worth while to wash out both the stomach and bowel with large amounts of sterile water; the long tube must be passed well up, and the can for the water held three feet above the bed, the patient being on a very large mackintosh and the buttocks raised on a bedpan.

After reading with much interest Major Leonard Rogers and Captain Maxwell Mackelvie's articles in the *Indian Medical Gazette* for May, 1908, the author thinks that by the use of a hypertonic solution the period of transfusion might be considerably reduced, but is still of the opinion that the best results will always be obtained by allowing time for the endothelium of the vessels to recover itself and thus reverse the abnormal osmosis, and by observations on the specific gravity of the blood rather than on the blood-pressure.

In a few cases of very severe pernicious malaria in which quinine has failed when given repeatedly by the mouth, rectum, hypodermically, and even intravenously, he has had remarkable results by transfusing 2½ or 3 pints of normal saline solution containing 7 grains of the bichloride of quinine; the temperature has fallen to normal within a few hours and remained down. The beneficial action of the saline solution appears to be the breaking up of certain red corpuscles, and allowing the quinine to act on parasites it was unable previously to affect.

AN EXCLUSIVE PROTEID DIET IN CERTAIN DIGESTIVE DISORDERS.

YOUNG in the *Clinical Journal* of November 4, 1908, says that although attention has frequently been directed to the therapeutic value of an exclusive proteid diet, to wit, a minced meat and hot-water diet, in obesity and certain conditions of chronic disease, its efficacy in digestive disorders has not received that recognition from the profession at large which it undoubtedly deserves.

Saundby pertinently supports this view when he says: "The digestibility of finely-divided meat is not sufficiently appreciated; probably no food is tolerated so well by our stomachs, for even where the gastric chemistry is deficient such food is easily got rid of and causes no discomfort."

This lack of appreciation, however, is not confined to those who do not prescribe the diet, since many who may have employed it successfully in cases of gout, chronic rheumatism, etc.—where it will often succeed despite faulty technique and administration—have met with only partial success, or even apparent failure, when applying it to digestive disorders pure and simple, owing to the fact that in these conditions details of preparation, administration, and careful regulation of the diet to the digestive capacity of the individual become of paramount importance if a successful issue is to be looked for.

This neglect of detail arises from the limited conceptions which prevail concerning the diet, a not infrequent idea being that the sum total of its rationale consists in the giving, to each patient alike, of half a pound or so of minced beef three times a day and a pint of hot water four times a day. The folly of prescribing a diet in this routine fashion without regard to the individual, particularly when the individual is the subject of digestive disorder, should be obvious; but even taking for granted that the diet has been appropriately regulated to meet the needs of the particular case, the good results which may be anticipated are frequently nullified by inattention to the other details mentioned, such, for instance,

as the proper preparation of the meat (for which the physician should be able not only to give adequate instruction, but also be able to judge by inspection and taste whether these instructions have been carried out efficiently), the correct temperature of the hot water, and the hours at which the meat and hot water respectively should be taken. This last detail is a frequent source of error, the water being given shortly before, after, or even with meals, instead of at least one clear hour previously, so that it may have time to cleanse and be evacuated from the stomach before the subsequent meal.

It must be admitted that this neglect of essentials is largely due to the scarcity of definite literature upon the subject, even Dr. Salisbury, the originator of the system, paying little or no attention in his textbook to digestive disorders pure and simple. It is the purpose of the author in the present article, therefore, to endeavor to remedy this deficiency by briefly describing the rationale of the diet, or rather that adaptation of it which he has found to be the most suitable in dealing with these conditions.

Before doing so, however, he emphasizes the fact that the diet must be regarded as a therapeutic measure only—that is, simply as an abnormal diet, often peculiarly suitable in helping to restore an abnormal condition of digestion to the normal. Once this result is attained the patient should, with rare exceptions, be transferred to an ordinary mixed diet of proteids, fats, and carbohydrates with as little delay as possible.

It need hardly be mentioned that such a rigid régime is seldom, if ever, required in mild cases of functional dyspepsia. If adopted in cases of moderate severity, a modified form of the diet will usually suffice to remedy matters.

Speaking generally, however, the diet should be reserved for chronic digestive disorders, such as chronic gastritis, chronic hyperchlorhydria, dilatation of the stomach, etc., which persistently resist the usual lines of treatment. In the large majority of these cases the rigid diet should be administered *ab initio* if satisfactory results are to be obtained.

The basis of the exclusive proteid diet consists of thoroughly cooked minced lean beef (so prepared that all gristle and the greater part of the connective tissue are removed) and hot water. (Minced mutton or chicken may be substituted occasionally for variety, but bulk for bulk neither is so nourishing as the beef.)

The minced beef is given three times a day, with a five-hour interval between each meal. The best hours for meals are 8.30 A.M., 1.30 P.M., and 6.30 P.M. In any case the last meal should not be later than 7 P.M.

The hot water is given four times a day, one and a half to one and a quarter hours before each meal, and three and a half hours after the last meal. The water should be sipped slowly at a temperature of about 120° F.—roughly, that at which tea or coffee is usually taken. The quality of the water is an important factor, and if at all hard distilled water must be used.

The quantity of meat at each meal varies from two ounces upward, the quantity of each portion of hot water being a pint, or less, according to the nature of the individual case.

Such is the exclusive proteid diet, which is continued as long, and only as long, as the necessity lasts.

Its therapeutic action briefly considered is as follows:

(*A*) *The hot water.* The hot water, slowly sipped, performs many useful functions, in addition to acting as a general stimulant. Thus, taken at the times indicated, (1) it washes the stomach and stimulates it to expel gas, mucus, and stagnant contents, thus leaving it clean and in good condition for the subsequent meal, the last quantity of hot water performing the same function previous to sleep. (2) It acts as a stimulant to the skin, liver, and kidneys, promoting perspiration, increasing the flow and fluidity of the bile, and the quantity and solvent power of the urine. (3) It increases the fluidity of the blood, thus tending to dissolve abnormal products

which may have accumulated in the capillaries and lymphatics. (4) Lastly, it acts as an efficient protection to the liver and kidneys by keeping in solution, and so rendering easy of elimination, any imperfectly oxidized products of nitrogenous waste which may result from the increased proteid ingestion.

(B) The minced meat. With regard to the minced meat, it is obvious that (1) it contains a maximum of nourishment with a minimum of weight and bulk. (2) The smallness of weight and bulk imposes but little strain on the motor power of the stomach, while the comminuted condition of the meat renders it easily accessible to the gastric juice. (3) Being largely digested in the stomach, it gives temporary rest to the succeeding portions of the alimentary tract. (4) Indirectly it tends to arrest the formation of toxins and consequent autotoxemia, proteid putrefaction being discouraged by careful quantitative regulation of the minced meat, while acid fermentation is inhibited by the absence of carbohydrate food.

As already mentioned, the rigid diet described is continued as long, and only as long, as the necessity lasts, this necessity naturally varying in accordance with the particular case. As the patient improves a little supercooked starch food may be added, such as baked bread (thin slices of bread baked in the oven until golden brown), breakfast biscuits, rusks or zwieback, with which a little butter is sometimes allowable. Small portions of fish, chicken, fresh game, lamb, and mutton (not necessarily minced) may also be gradually introduced. Later, boiled rice, milk puddings, purées of vegetables and fruits may be added to the dietary (all such conditions, however, being justified by periodical clinical analyses); and so the patient gradually returns to a normal mixed diet.

PERNICIOUS MALARIA.

DEADERICK in the *Memphis Medical Monthly* for October, 1908, states that the most suitable salt of quinine for injection is unquestionably the bimuriate. The tablets of bimuriate of quinine and urea are convenient and insure accurate dosage.

The advantages of giving quinine by the needle in pernicious malaria are obviously being able to administer it to patients unable to swallow or to retain it, and the certainty and promptness of absorption. Nevertheless, these great benefits are somewhat discounted by bad results which sometimes appear. Formerly tetanus was to be feared. Bartholow mentioned several such cases reported from New Orleans, and two occurring in one regiment of the British Indian army. Vincent in a late report recalls the numerous cases following the subcutaneous use of quinine. McCampbell speaks of a fatal case of tetanus shortly following a hypodermic injection of the hydrochlorate of quinine, though the experiments of this writer fail to corroborate those of Vincent to the effect that the injection of quinine favors the development of the tetanus bacillus. In the late French campaign in Madagascar, six cases of tetanus subsequent to hypodermics of quinine came under observation. But there are other consequences which, while not so deadly, are more commonly met, to which the author refers, such as nodules, necrosis, sloughing, and abscess formation. Plehn has frequently seen necroses and abscesses result from hypodermics of quinine. Thayer says there is always danger of subsequent abscess or necrosis. Laveran states that injections made into the skin often give rise to eschars. Manson has often seen induration, if not abscess, follow the hypodermic injection of quinine, conducted in the ordinary way. Bonnette and LeDantec say that in spite of the greatest aseptic precautions eschars and abscesses will sometimes result. Craig has observed abscesses in about 20 per cent of the cases, and often had nodular elevations at the seat of puncture which persisted for some time. Gros and Tyson have abandoned the method on account of the frequency of abscess formation.

These results, however, should not prevent the use of quinine injections in the treatment of pernicious malaria, as such effects are in a great measure preventable.

To this end there are three measures of importance: First, asepsis; secondly, dilute solutions; and thirdly, deep injections.

The first is at the present day probably the least often neglected, as most physicians realize the importance of sterilization, and a spoon and a few matches are sufficient to effect it on the part of the solution and needle, and soap and water are almost omnipresent.

The necessity of employing a dilute solution has been all but ignored. Nearly all writers on the subject lay great stress on the need of asepsis, but with few exceptions do not even mention the evils of too concentrated solutions. Strong solutions of quinine injected into the tissues cause a wall of necrosis around the solution preventing absorption and paralyzing phagocytosis, resulting, even if the solution is sterile, in nodes or ugly chemical sloughs. It is in all probability this chemical irritation of the cells which allows of bacterial infection following the injection of solutions not properly sterilized. Witness the frequency with which unsterilized solutions of morphine and other drugs are given without the slightest bad consequence.

For injection purposes the following formula is most suitable:

> Quinine bimuriate, 1 Gm. (grs. xv);
> Water, 10 Cc. (drs. ijss).

As much of this as needed may be injected in one or several locations.

The solution should not be injected hypodermically, but intramuscularly, since in the latter location the injection is more certainly absorbed, is less apt to cause induration and abscess, and is less painful. In some cases of pernicious malaria the superficial circulation is very poor, absorption correspondingly inadequate, and necrosis almost inevitable, if the quinine is not deeply injected. In a case of algid malaria which the author had where the quinine was given hypodermically, the site of injection began to turn blue within ten minutes and was almost black within two hours.

The initial dose should ordinarily be fifteen grains. Afterward from five to ten grains should be injected every six to eight hours as long as the symptoms demand it. For children under five years the first dose may be a grain and a half for each year of age. The statement of Homem that in the administration of quinine in pernicious malaria it is best rather to sin by prodigality than by parsimony, is open to question. While there are few drugs so potent as quinine having so few toxic effects, bad results do sometimes follow excessive doses. Schellong noticed that large doses added to the insult to the nervous system and had a depressing effect on the heart. As Plehn expresses it, there is a universal tendency to attribute all bad phenomena to the disease and all favorable ones to the remedy. However, after using, in five cases, five to six grains in divided doses, repeated at short intervals during the height of fever, this accurate observer noted considerable depression of the heart, nervous system, and general condition of the patients.

Most of the continental writers recommend the Pravaz or Luer syringes with platinum-iridium needles, but the ordinary antitoxin syringe answers as well. A soft-rubber tubing connection between the needle and the nipple of the syringe is advantageous, as it may prevent the breaking of a needle in a struggling patient. One of these syringes, a small sterilizing pan, and an alcohol lamp do not occupy much space, and being almost indispensable in these cases should be easily accessible during the malarial season to the physician in a malarial locality, who often sees these cases miles from his office, when time is a matter of life and death. The ordinary hypodermic syringe may be used in an emergency, but to employ a sufficient quantity of a properly diluted solution a number of injections have to be made.

The best location for injection is in the gluteal region well above the ischial tuberosities, though the interscapular region is often chosen.

The technique of intramuscular injections of quinine may be summarized in these precautions: Have the solution freshly made, thorough, dilute, and sterile; ren-

der the syringe and the injection site aseptic; insert the needle into muscular tissue and avoid breaking the needle.

In 1890 Bacelli introduced the intravenous administration of quinine in the treatment of pernicious malaria, claiming thereby to have reduced the mortality from 17 to 6 per cent. The following formula was used:

Quinine hydrochlorate, 1 Gm.;
Sodium chloride, 0.75 Gm.;
Distilled water, 10 Cc.

The arm is bound above the elbow in order to distend the veins of the forearm, into one of which the needle is introduced in the direction of the blood current, and the solution injected very slowly after removing the constriction. The puncture should be covered with a sterile dressing. The solution should be warm and sterile, and care should be taken that no air is injected. If swelling occurs at the site of injection it is evident that the vein has not been entered. It is said that one gramme of quinine thus injected produces a solution in the blood of 1:5000, which is the strength deemed necessary by Binz to destroy protozoa. Rogers thinks well of this method and has abandoned the subcutaneous route. However, it probably has no advantages over the intramuscular administration. Moreover, it is not infrequently almost impossible to locate the veins, especially in young negroes.

Quinine dissolved in normal salt solution given by hypodermoclysis has been recommended by Grall and others. It is extolled especially by Glatard in the treatment of children suffering with pernicious malaria. This method is probably not adapted to the treatment of algid malaria on account of the deficient superficial circulation. Besides, the necessary apparatus is frequently wanting.

Just as antisyphilitic remedies may cause the gumma to melt rapidly, but are powerless to restore the tissue it has destroyed, so quinine has its limitations in the therapeutics of malaria. It should be borne in mind that in its relation to the parasites quinine is a toxin, but not an antitoxin. It is possible that where the parasites are accumulated to the extent of thrombosis the quinine in solution in the blood does not reach them in toxic quantities, and where perivascular exudation, hemorrhage, and necrosis have resulted from these thrombi, the annihilation of the parasites avails nothing. This is corroborated by those cases ending fatally, notwithstanding a rapid disappearance of the parasites, and in which post-mortem these secondary changes are found. All that can be expected of quinine is to destroy the parasites, and this it may fail to accomplish from not being absorbed, or not being present in the blood in sufficient quantities or at the time when the parasites are most susceptible to its action, or on account of thrombotic occlusions it may not gain access to the parasites causing the symptoms. Quinine is probably a true specific in those cases of pernicious malaria only in which, in the absence of irreparable changes due to toxins or to thrombi, the prompt destruction of the parasites would be attended by an almost simultaneous cessation of symptoms.

Other than the specific treatment there are important symptomatic indications to be met.

In cases with high temperature and hot, dry skin, cooling baths should be used. For heart depression strychnine or digitalis is useful.

In the cerebral types the ice-bag to the head is called for, and an active cathartic should be given if possible. Where this cannot be swallowed a drop of croton oil on the back of the tongue may be tried. If delirium is marked a solution of chloral and the bromides should be given by the rectum. Where there are convulsions, chloral and bromides by the rectum, morphine hypodermically, or even inhalations of chloroform, may be necessary. Bell employed lumbar puncture in a case of malarial coma to relieve the increase in the cerebrospinal fluid which usually exists in these cases, but the result was disappointing.

In algid attacks for the relief of cold surface and dyspnea, especially if choleraic symptoms are present, nothing is so suitable

as a combination of morphine and atropine. The heart usually requires stimulation by strychnine and digitalis. Hypodermics of ether may be necessary. If dysenteric symptoms arise they should be treated with opium and bismuth, together with saline irrigations.

ECZEMA IN CHILDREN.

In the course of an article on this subject in *Folia Therapeutica* for October, 1908, JOSEPH of Berlin says that from the earliest times some types of eczema have been supposed to come under the category of "milk scab." The author confesses that he has never been able to satisfy himself that milk of a particular kind has any influence on the production of eczema. The latter often occurs in children irrespective of whether they are nourished naturally or artificially. All this, of course, applies provided that no coarse pathological changes exist in the digestive apparatus, in which case the milk given may play the rôle of heterologous proteid, and as such may produce changes in the skin of a toxic nature. This may, of course, happen in children at the breast as well as in children artificially reared, for in both cases the proteid is not assimilated. Interference is required in some cases owing to over-nourishment, in others to under-nourishment, and in others again to irregularities in nourishment. As a general rule, however, in the treatment of eczema in children, provided the child is thriving on it, the writer suffers the nourishment to continue without objection. On the other hand, other observers, chief among them Finkelstein (*Medic. Klinik,* No. 37, 1907), have drawn attention to the fact that a diet which while being poor in salts is at the same time rich in proteid and fat exerts favorable effects upon infantile eczema. A liter or other quantity of milk suitable to the age of the child is fully curdled by means of essence of rennet. The greater part of the whey is removed and one-fifth (reckoned from the quantity of milk used) filled up to the original volume with barley water. The firm curd is rubbed through a fine hair sieve in order to render it fine-flaked, washed several times by flooding it with water, and then added to the mixture of whey and barley water. Finally, from 20 to 40 grammes of powdered sugar are added. The whole forms a viscid broth which is readily taken by children; it contains the whole of the casein and fat of the milk used, but only a fifth part of the salts of whey.

The author does not, of course, venture to throw any doubt upon the observations of Finkelstein, and therefore merely states that complete cure is observed quite as often by purely local treatment without this change of diet. He has prescribed the Finkelstein treatment, but as he has been unable to obtain the desired result without the additional aid of local treatment, he is accustomed to give greater attention to the latter. In a recent publication by Spiethoff (*Deutsche med. Wochenschrift,* No. 27, 1908) he likewise has been unable to observe any direct influence exerted by the Finkelstein diet on the eczema cases under his care.

Joseph, before doing anything else, is accustomed to forbid baths of every kind. Time after time, he asserts, he has seen baths of permanganate of potash, boracic acid, and other substances exert directly harmful effects, and even an ordinary cleansing bath used too early delays cure or brings about relapse. For the complete cure of eczema, therefore, he requires that the patient shall be neither washed nor bathed. The further endeavor of our treatment in acute cases must be directed to allaying weeping from the affected parts as quickly as possible. For this purpose two courses stand open to us: we may either apply astringent fomentations or drying powder. For the former method both resorcin and acetate of aluminum are specially to be recommended. As to which of the two is the better remedy it is difficult to decide; it is a question of experiment. At one time resorcin acts well; at another time—in an apparently identical case—better results are obtained from Burow's solution. It is probable that small cellular changes play some

part in the individual process which we are unable to discern clinically, but which afford varied indications. The author dissolves 10 grammes of resorcin in half a liter of water and uses the fluid for a continuous series of fomentations. Of the liquor aluminii acetici he gives two tablespoonfuls in 250 cubic centimeters of water. In the event of the desired effects not being obtained after a few days the treatment is changed, powder being substituted. The best form is rice powder (amylum oryzæ). The parts are well powdered several times a day until, after the lapse of some days, we are successful in allaying the weeping and bringing the eczema into the dry stage.

The skin, which is now in a state of some tension, requires inunction with an indifferent ointment. Here again it is largely a question of experiment, since it cannot be foretold with certainty which ointment will act best in a given case. In one case a serviceable application will be from a 3 to 5 per cent boracic vaselin, such as:

℞ Acidi boric. pulv., gr. xv to xxv;
Vaselini, ℥ij.

In another child good results may be achieved with Kaposi's unguentum vaselini plumbicum. Unfortunately, however, in spite of initial benefit, relapses occur, and the diseased parts again return to the weeping stage. We may then make use of the paste introduced by Lassar. As this contains fat and powder in equal proportions, its action is both drying and emollient. In acute eczema we may use a zinc paste composed as follows:

℞ Zinci oxidi, ʒvj;
Amyli, ʒij;
Vaselini, ʒjss.

This must be applied to the thickness of a knife-blade two or three times daily and covered with gauze. Every third day it is necessary to remove the ointment with olive oil, in order to decide whether or not the treatment shall be continued. As soon as absolute dryness is established and hyperemia begins to be less pronounced, we may proceed to the more comfortable employment of the lotion introduced by Jadassohn, composed as follows:

℞ Zinci oxidi,
Amyli, ää ʒv;
Glycerini, f℥iijss;
Aquæ dest., ad f℥iij.

This fluid should be well shaken and applied by means of a large brush several times a day to the whole of the affected part. It dries by itself in a few minutes, and further dressing is unnecessary. It is easy to imagine how comfortable such a form of treatment may be, both for the child and the nurse. Instead of it the lead-water liniment of Boeck is sometimes to be preferred:

℞ Talci pulv.,
Amyli, ää ʒv;
Glycerini, f℥ij;
Liq. plumbi subacetatis diluti, q. s. ad f℥iij.

This is to be used in the same way as the lotion already mentioned.

In many cases, however, no progress is made with any of these prescriptions; the child is tormented with itching, which continues unabated both day and night. In order to allay this, tar is the remedy which chiefly stands at our disposal. It should always be borne in mind, however, that the early use of tar is a two-edged sword, and that often retrogression or the recurrence of weeping follows upon apparent improvement. The author therefore advises that the transition to tar should only be made when absolute dryness is established, and when hyperemia is no longer a prominent feature. A less irritant action is possessed by the liquor carbonis detergens. While the skin is still in a state of tension it should be used in the form of an ointment, mild at first but stronger afterward:

℞ Liquor carbonis detergens, f℥jss to f℥ijss;
Ung. leniens, ad ʒiij.

Should the skin remain quite dry and be thus able to bear more powerful medication, we may proceed to tar lotions:

℞ Liquor carbonis detergens, f℥jss to f℥ijss;
Zinci oxidi, ʒv;
Glycerini, f℥vijss;
Aquæ destillati, f℥iij.

The convenience of the methods above described renders tar in this form an almost indispensable remedy in childhood.

THE TREATMENT OF CHOREA WITH CHLORETONE.

In *Folia Therapeutica* for October, 1908, TAYLOR reminds us that we may expect an attack of chorea of moderate severity will last six or eight weeks if treated by rest, and arsenic is administered; if arsenic fails, then the zinc compounds or belladonna may be tried. Dr. Essex Wynter, in the *Lancet* of March 30, 1907, recorded his results in treating fourteen cases of chorea with chloretone. He says: "The choreic movements were limited to nine days, and the stay in hospital to three weeks on an average." This seemed to the author to be so satisfactory that he decided to try chloretone in his cases of chorea. Since then he has seen, in hospital and private practice, twelve cases, all of which have been so treated, and the result has been uniformly good.

His cases were consecutive ones, and not picked; the ages of the patients varied from five to fifteen years, and with one exception all were girls. The average duration of the choreic movements after beginning treatment by chloretone was eleven days; the length of their stay in hospital was not reduced, however, for he kept the patients in for some time to see if there would be any relapse. In two cases only was there any return of choreic movements; both were very bad cases, but in each the relapse was cured in three days and two days respectively by putting the patients again on chloretone, and in neither case has there been any further return.

The worst case had been suffering from chorea for four months, and during the six weeks previous to coming under the author's care in the hospital she had been isolated in a dark room and treated with arsenic, with no good effect. When admitted she was unable to stand or talk, and the choreic movements were universal. She was put on 5 grains of chloretone three times a day to begin with, and in twenty-one days the choreic movements were gone and she was up and walking about. Seven weeks later, while still in hospital, there was a slight return, but on putting her back to bed and giving one grain of chloretone three times a day, the chorea disappeared in three days. Since then there has been no recurrence of the choreic movements.

The other case was an interesting one, as she had twice before been an in-patient. The first time she was treated with arsenic, and the second time with zinc; both times she went out merely relieved, but by no means cured. The second time she was under the author's care, and her stay in the hospital lasted for twelve weeks, ten of which she spent in bed, and on her discharge she was able to walk about jerkily and talk fairly well. The next time she was admitted (between four and five months after her discharge) she was as bad as ever—she could hardly walk and her speech was unintelligible. She was ordered 10 grains of chloretone three times a day, and in thirteen days the choreic movements had completely disappeared. She was kept in bed for another seven days, the chloretone being rapidly reduced; after being up for eight days there was a slight relapse, but on returning to bed and receiving 5 grains of chloretone, t. i. d., all movements ceased in two days. After this he kept her in the hospital for several weeks, during which time she helped in the ward work, and there was no return of the chorea. That the chorea was cured was evidenced by the work she did, such as washing dishes and carrying food round to the other patients, and by the fact that there were no complaints of any accidents to crockery, etc.

Chloretone is trichlor-tertiary-butyl-alcohol; it is a white crystalline body, tasting of camphor, very slightly soluble in water, but easily in glycerin, petroleum, or oil. The dose is from 5 to 15 grains. In the author's cases the dose given varied from 3 to 10 grains three times a day, according to the age of the patient; in two cases it was given every four hours. In every case it was given with one-drachm doses of petroleum emulsion. As soon as there was the slightest improvement visible, generally after seven or eight doses—that is, in two or three days—the dose was

reduced by one grain each dose until only one grain of chloretone was contained in each teaspoonful of emulsion; after eight doses of this, if the chorea had stopped, the patient was put on extract of malt with cod-liver oil, and kept on it while in hospital.

The only ill effects noticed were in one case a rash and in another drowsiness. In the one case a red erythematous rash, which was slightly irritable, appeared after taking chloretone for ten days. The chloretone was stopped, and in two days the rash faded, nor did it return on restarting the chloretone. In the other case, after recovery from a slight relapse, the patient became very excitable and talkative. She was ordered 10 grains of chloretone every four hours (her original dose had been 10 grains three times a day), and after taking four doses she became very drowsy and slept for practically twenty-four hours; while asleep she was easily roused for food. There was no alteration in pulse or respiration, and except for the drowsiness she seemed perfectly well.

There have been no return cases, and so far all the patients have kept quite free from any sign of chorea.

The author is inclined to think that in chloretone we have a drug of immense value in the treatment of chorea, for not only does it appear to shorten the attack, but the tendency to have second and third attacks seems also to be reduced.

THE REGULATION OF BLOOD-PRESSURE IN MAN.

Sir Lauder Brunton in the *Lancet* of October 17, 1908, says that the first indication in treating rise of tension is to diminish the supply of proteid food, and especially of butcher's meat, and to put the patient on a diet of bread, vegetables, and fruit, with milk, butter, and fat bacon. If the tension is not excessively high, eggs in any form, fish, and fowl may be allowed. Alcoholic beverages should be used sparingly if at all, and the same is true of tea and coffee. Tobacco *per se* will produce atheroma in animals, and nicotine is almost the only drug which nearly equals adrenalin in its power to raise blood-pressure. In cases in which the tension is at all high, tea, coffee, and tobacco should all be prohibited, but when the tension is only moderate, the extent to which they may be allowed must depend upon the individual case. It is best to drink very little with meals, for the twofold reason that drinking along with food is apt to lessen the completeness of mastication, and much fluid dilutes the gastric juice and slows digestion. The best time to drink is about three hours after a meal, and just as the food is passing from the stomach into the duodenum. Fluid taken at this time is quickly absorbed and tends at the same time to remove the remnants of the previous meal from the stomach. Either plain water, hot water, or one of the various waters so much recommended in gout may be taken. Moderate exercise without strain is beneficial, but all strain, such as lifting weights, pulling buckles when packing portmanteaus, and sudden exertion of all kinds should be avoided. Sudden exertion will raise the blood-pressure very greatly, but steady, continued exertion, on the other hand, tends rather to lower it, as the flow of blood through the muscles becomes freer from their action. Steady mental work in moderation is good, but irritation and emotion are bad. The author mentions that inability to keep an appointment raised his tension by one-third, and that actual anger is the most dangerous emotion of all.

Constipation must be carefully avoided, as it tends to raise the blood-pressure, and purgatives tend to lower it. Mercurials seem to have a specially beneficial action, and half a grain or a grain of calomel or three to five grains of blue pill, or a combination of the two, once or twice a week, followed by a saline in the morning, tends to keep the pressure down. Iodide of potassium in doses from one to ten grains three times a day, according as it suits the patient, is useful, and may be given for a couple of weeks at a time, left off for a week, and then again given for two weeks

more. In this intermittent fashion it may in some cases be continued with advantage for months together. The hippurates of ammonium and sodium recommended by Oliver in doses of from 5 to 10 grains, and benzoate of sodium in from 5- to 30-grain doses, have a somewhat similar action. The author ordinarily uses the nitrite of sodium, beginning with a dose of half a grain and gradually increasing it to four or five grains three times a day. In some cases he finds that the nitrite of sodium in half- to two-grain doses with 15 or 20 grains of nitrate of potassium, and sometimes with 10 grains of bicarbonate of potassium as well, given in a tumblerful of water every morning, tends to keep the pressure from rising.

The author has been much interested in one patient who consulted him twelve years ago for cardiac pain, and has kept fairly well ever since by the use of nitrate of potassium, nitroglycerin, and nitroerythrol. He is a man of great intelligence and has made interesting observations upon himself. He suffered from bleeding at the nose, but a powder of 20 grains of nitrate of potassium with half a grain of nitrite of sodium stopped the bleeding. Whenever he discontinued the medicine, however, the bleeding recommenced. After a while the small dose of nitrite of sodium ceased to control it, but on increasing the dose the bleeding of the nose stopped again. During all this time the slight cardiac pain has not increased, and in cases in which the tension is already high and angina pectoris actually exists the attacks may sometimes be warded off for years by the use of vascular dilators. One patient who was himself a doctor was able to keep himself free from attacks of angina by the daily use of nitroerythrol for three or four years, beginning with half a grain three times a day and gradually increasing it.

There is one class of cases that requires particular attention, viz., those cases of high tension in which the heart is beginning to fail, and such symptoms as irregularity or intermission of the pulse, giddiness, inability for exertion, shortness of breath, and even edema of the ankles, are beginning to make their appearance. In such cases cardiac tonics, such as strophanthus, digitalis, strychnine, and caffeine, require to be combined with vascular dilators, whilst rest, comparative or absolute, must be insisted upon as more important than any medication. Distention of the stomach by flatulence seems to increase the pain in angina in two ways, by tilting the heart and thus causing mechanical interference of the circulation, and also by reflex action through the vagus. Frequently patients are greatly relieved when they are able to pass flatus. The writer finds a very useful mixture for such cases is:

℞ Liq. trinitrin., m. ss to iij;
Spt. ammon. aromat., m. xv to ʒj;
Spt. æther. comp., m. v to x;
Spt. chloroformi, m. v to x;
Tinct. cardamom. comp., m. x to xxx;
Aq. menth. pip., q. s. ad fʒj.

This draught may be repeated every quarter of an hour till relief is obtained or until the trinitrin causes giddiness. When the pain is very acute inhalation of nitrite of amyl is the quickest means of relieving it, but in some cases it fails, and then an inhalation of chloroform may be used. The easiest way to give it is to pour a few drops upon a piece of blotting-paper at the bottom of a tumbler and let the patient take it himself. As soon as it begins to take effect the hand falls and the inhalation ceases. The inhalation of iodide of ethyl sometimes answers, but it is more generally useful in spasmodic asthma than in angina pectoris.

In some cases recourse must be had to subcutaneous injection of morphine, and although this may not be altogether without risk, it must be remembered that the question is not one of absolute but of comparative rest. The patient is liable to die from the attack at any rate, and in all probability the injection of morphine will not only relieve his pain but give him a better chance of life. Even when death occurs after the injection of morphine, as it sometimes does, it is to be remembered that the patient would in all probability have died without the drug, and unless the dose was so large

as to be dangerous in itself any untoward results are to be ascribed to the disease rather than to the remedy. Where the pain is excessive even morphine may fail, but in those cases the administration of chloroform subsequent to the injection will sometimes relieve. The chloroform anesthesia passes into the morphine narcosis, pain is relieved, and danger to life may be averted for the time, although in such cases in which the severity of the disease is so great a subsequent attack after a very short interval may prove fatal.

But distressing as angina pectoris is, a still more distressing condition is that of some cases of paralysis where the patient is unable to help himself or even to express his desires or wants and becomes a burden both to himself and to others. Medicine is of little avail when such a condition has actually occurred, and therefore it is that the routine examination of blood-pressure in all cases, or at any rate in all patients above middle life, is so necessary. For it is only by taking it in time that high tension may be prevented from producing vascular disease and thus preserving the integrity of the brain and mental functions, or averting painful attacks of angina pectoris, and not merely prolonging life but of lengthening the period of bodily and mental activity.

BLOOD-PRESSURE WITH SPECIAL REFERENCE TO HIGH ALTITUDES.

In a research on this subject published in the *American Journal of Physiology* of November 2, 1908, SCHNEIDER and HEDBLOM reach the following conclusions:

1. A considerable elevation in altitude tends to lower systolic and diastolic blood-pressure and to increase the rate of heart-beat.

2. The fall in systolic pressure is slightly greater and more certain to occur than the fall in diastolic pressure.

3. A rise in diastolic pressure occurs in some individuals.

4. The influence of such factors as physical states, eating, and exercise may obscure the influence of altitude on the blood-pressure.

5. The fall in blood-pressure and increase in heart-beat are most marked in the early part of the residence at the higher altitude.

6. On a prolonged stay at high altitude the heart-rate probably returns more nearly to the normal than the blood-pressure.

7. High altitudes do not affect to the same degree the blood-pressure of all individuals.

8. Small elevation in altitudes does not appreciably influence the blood-pressure.

9. Those individuals most affected by high altitude seem to sustain the greatest fall in systolic blood-pressure and the greatest acceleration in the rate of heart-beat.

10. The heat of the summer season probably accelerates the pulse-rate.

THE LENHARTZ TREATMENT OF GASTRIC ULCER.

BROWN in the *Chemical Journal* of November 5, 1908, reminds us that at the Congress for Internal Medicine at Wiesbaden in 1901 Lenhartz protested strongly against the orthodox treatment for gastric ulcer. He urged that in patients who are already in a poor physical condition consequent on one or more hemorrhages, and indeed often collapsed, the "starvation treatment" not only maintains them in their wretched anemic state, but might even drag them into a serious state of inanition, which would be very unfavorable to the healing of an ulcer. On the other hand, if enough milk were given by the mouth to maintain the body weight it would overfill the stomach and stretch its walls, thus preventing a contraction of the ulcer and presenting the danger of renewed bleeding. He maintained that the principles that should guide us in the treatment are as follows:

1. To furnish nourishment and improve the general condition, and thus favor a more rapid healing.

2. To prevent distention of the stomach by limitation of the size of the meals and the amount of fluids, and by the application of ice to the epigastrium.

3. To prevent the action of the excess of hydrochloric acid by combining it with food albumen and with bismuth.

These indications are best fulfilled, in his opinion, thus: Feeding by the mouth is started at once, concentrated foods rich in albumen being employed. Food is given at hourly intervals from 7 A.M. to 9 P.M., but complete rest is allowed at night. The patient is fed a teaspoonful at a time, and is not allowed to feed herself for a fortnight. She is kept in bed for a fortnight, and other medicinal measures, such as the administration of bismuth, can be employed as required.

Essentially the diet consists of iced fresh milk and raw eggs, the whole egg being beaten up and iced. Both milk and egg are prepared in a covered glass tumbler surrounded by ice. The feeding-spoon is also kept iced. Granulated sugar is added to the eggs on the third day; later, raw scraped beef, boiled rice, and soaked rusk are also given.

The accompanying table gives the quantities allowed in the original Lenhartz dietary; some modifications will be discussed later. In English measures these quantities mean on the first six days that the patient is taking—

Day.	Eggs (drachms per hour).	Milk (drachms per hour).	Sugar (per diem).	Scraped beef (per diem).
1	2	4	.....	.....
2	3	6	.....	.....
3	4	8	1 oz. to eggs.	.....
4	5	10	1 " " "	.....
5	6	12	1½ " " "	.....
6	7	14	2 " " "	Rather more than 1 oz. divided into three doses.

ORIGINAL LENHARTZ DIETARY.

	Days.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Eggs	2	3	4	5	6	7	8	8	8	8	8	8	8	8
Sugar, with eggs (in grms.)	..	..	20	20	30	30	40	40	50	50	50	50	50	50
Milk (in Cc.'s)	200	300	400	500	600	700	800	900	1000	1000	1000	1000	1000	1000
Raw scraped beef (in grms.)	..	..	..	..	..	35	70	70	70	70	70	70	70	70
Milk rice (in grms.)	..	..	..	..	..	..	100	100	200	200	300	300	300	300
Rusk (soaked), 1 piece, 20 grms.	..	..	..	..	..	..	..	1	2	2	3	3	4	5
Raw ham (in grms.)	..	..	..	..	..	..	..	..	..	50	50	50	50	50
Butter (in grms.)	..	..	..	..	..	..	..	..	..	20	40	40	40	40
Represents in calories	280	420	637	777	956	1135	1588	1721	2138	2478	2941	2941	3007	3073

No attempt is made to provoke an action of the bowels during the first week at least, to avoid peristalsis, and allow absorption of outpoured blood in the intestines. Then, if necessary, a small glycerin enema or hot-water enema may be used.

The advantages claimed for this treatment are that recovery is more rapid, and that it does not deplete the patient, the food supply being sufficient throughout. The sour regurgitation subsides, vomiting and bleeding stop more quickly, and relapse is less frequent, while pain ceases promptly and morphine is never needed; it is possible to treat the anemia earlier, and an increase in the body weight may be manifested as early as the first week.

Before introducing this treatment, Lenhartz noted that recurrent hemorrhage had occurred in 20 per cent of the last 100 cases under his care, while in the first 135 cases treated on his plan only 8 per cent had any recurrence of hemorrhage. He had only three deaths: one from the severe degree of the anemia, one from femoral thrombosis leading to pulmonary embolism, and one from the continued erosion of a duodenal ulcer into a vessel; in this case there were five ulcers altogether.

The treatment has been taken up on the Continent to a considerable extent, and also in America, but in England it has received singularly little attention. Haberman has given a very clear résumé of the method, but records of cases treated in England are scanty. Early in this year Lambert in the *American Journal of the Medical Sciences* (vol. cxxxv) insisted on its advantages. The treatment seemed to the author

well worth a trial, and he has now employed it for nearly a year. He has notes of eleven cases in which he used it, and he has been responsible for its use in several others.

LUMBAR PUNCTURE IN DIAGNOSIS AND THERAPEUTICS.

EBRIGHT in an article on this topic in the *Journal of the American Medical Association* of November 7, 1908, reminds us that cytodiagnosis of the spinal fluid has in the last few years advanced to a secure position, although the crystallization of medical opinion on this subject is not yet complete. It is established that in suppurative meningitis polynuclear leucocytes appear in large numbers, and in epidemic meningitis also, but in this disease lymphocytes may increase as improvement takes place. In tuberculous meningitis the lymphocytes are usually increased in the fluid in the later stages, the polynuclears in the earlier stages. Cases are reported in which the latter predominate throughout the course of the disease, but, as a rule, when polynuclears outnumber lymphocytes in tuberculous meningitis a mixed infection is present. In 80 per cent of syphilitic affections of the central nervous system there is a notable increase of lymphocytes in the spinal fluid. This holds also in tabes dorsalis and in paresis. In the latter affection albumin may also be increased, but not in tabes nor the other syphilitic conditions.

Examination for the presence of the tubercle bacillus, the meningococcus of Weichselbaum, the bacillus of typhoid, diphtheria, or influenza, and the colon bacillus, the pneumococcus, which is the chief pyogen, the staphylococcus, streptococcus, and the bacillus pyocyaneus is not a difficult matter, and since all have been demonstrated in the spinal fluid, and as the prognosis and treatment vary to a great degree with the nature of the exciting agent of cerebrospinal inflammation, the importance of such an examination is evident. Search for the tubercle bacillus is rendered less uncertain if, after the fluid has been allowed to stand long enough for the characteristic web-like coagulum to form, the coagulum be removed and stained for the bacilli, preferably after being digested with pepsin, although this is not usually necessary. A peculiar phenomenon has been observed in this connection: Frequently, when before death tubercles were discovered with difficulty or not at all, immediately after death they could be demonstrated in large numbers. In one such case the author found so many in the fluid, post mortem, that after decolorization in the usual way the preparation still remained red. The explanation of this may be altered chemotaxis after death, between bacilli and tissues, by which the bacteria are drawn from the tissues into the fluid.

As a therapeutic measure, lumbar puncture is indicated whenever increased intraspinal pressure gives rise to symptoms. At intervals of from one to five days withdrawal of from 5 to 100 Cc. of the fluid may be advisable. With such a procedure five recoveries from tuberculous meningitis are recorded in which the bacilli had been demonstrated in the spinal fluid. In Adam's twenty-one cases of Pfeifer bacillus infection there were three recoveries in which lumbar puncture was done one to three times. Schlesinger claims that not only under this procedure will comatose children with tuberculous meningitis be restored to consciousness, but also that convulsions and other irritative manifestations may be obviated. It cannot be denied, however, that drawing off fluid in this disease may hasten death. In uremia lumbar puncture and the relief of pressure possibly is an important palliative agency, and in acute serous meningitis it usually causes a favorable outcome. In eclampsia the benefits are not striking, and though sometimes relief of symptoms follows, the procedure is falling into disuse in this connection. In chlorosis, with severe headache, spinal pressure is frequently high, and lumbar puncture has been advised, but in any condition amenable to other remedies such a treatment would be one of last resort. With the exception of the use of antiserum in epidemic cerebrospinal meningitis, which has revolutionized the treatment of that

disease in the last few months, the injection of remedial agents into the subarachnoid space has not been demonstrated to be satisfactory. Intradural infusion of tetanus antitoxin, first advocated by Blumenthal and Jacob and von Sicaro, is now advised by Romberg, in view of the fact that its subcutaneous use is more encouraging.

ARSENIC IN DISEASES OF THE SKIN.

HARTZELL states in the *Journal of the American Medical Association* of October 2, 1908, that his experience with sodium cacodylate has been limited to its use in ten cases of psoriasis of the ordinary type and of average severity. It was given by the mouth, in doses varying from ½ to 1¼ grains, repeated three or four times a day. In three of the ten cases more or less improvement was noted after the larger doses had been reached, but this improvement was not greater nor did it appear earlier than after the use of arsenous acid or Fowler's solution. In one of the cases, a woman twenty-seven years of age, in which there was at first improvement, numerous lesions appeared while she was taking three-fourths of a grain, three times a day; this patient also complained of being "very nervous" after taking the drug for a period of two weeks. In one case the patient refused to continue the remedy because of the very offensive odor of garlic which it imparted to her breath, and in another case it had to be discontinued because of a severe diarrhea, although it was well borne in all the other cases. After a few months' trial it was abandoned because, while it produced some improvement in some of the cases, it did not seem to possess any real advantage over the older, well-tried remedies.

In 1902 Schild reported a series of 75 cases of various diseases of the skin treated by hypodermic injections of a recently introduced compound of arsenic and anilin named atoxyl. In all the cases of psoriasis treated by this remedy a favorable influence on the eruption was noted. In a case of xanthoma diabeticorum the eruption disappeared completely after twenty-two injections, and 13 out of 14 cases of lichen were cured. In a second series of 50 cases published a few months later, including such diseases as psoriasis, dermatitis herpetiformis, pemphigus, lichen, equally favorable results were observed. Biringer, von Zeissl, Moller, and others have reported equally gratifying results from the use of this remedy in diseases of the skin, the curative effects being especially marked in psoriasis and lichen.

During the past three months he has used atoxyl in eight cases of psoriasis in the wards of the Philadelphia Hospital. In every case it was given hypodermically in doses of 25 to 50 minims, of a 10-per-cent solution, at intervals of two or three days, the injections being made into the gluteal muscles. During the treatment all external remedies were suspended. In all of the eight cases more or less improvement in the eruption was observed, the improvement usually beginning after the third or fourth injection. In one case, after six injections with beginning improvement, the treatment was suspended for two weeks; during this period new lesions began to appear and continued to do so until the resumption of treatment, when the eruption again began to undergo involution. In the most extensive case of the series, in which the eruption was well-nigh universal, improvement was noticed after the fifth injection, and this improvement continued until the fourteenth, when somewhat suddenly new lesions began to appear on all parts of the body. After the seventeenth injection the eruption again began to show signs of improvement, the new lesions, as well as the old, growing pale, but the patient leaving the hospital the treatment could no longer be continued. Two weeks later the patient returned to the hospital, and it was then noticed that the eruption had disappeared completely from the hands and arms and was much improved on the rest of the body. In a young woman, eighteen years old, the eruption had practically disappeared after twenty-six injections. The greatest number of injections

given any one case was twenty-seven, the treatment extending over a period of two months. In this case there was also almost complete disappearance of the eruption.

It will be observed from the foregoing summary that while every one of the eight cases responded favorably in some degree, in only two was there anything like an approach to a complete disappearance of the disease. This is not a very brilliant showing, especially when compared with the results reported by Schild and others, but it should be remembered that in his cases the atoxyl was given alone, while in the cases treated by Schild the usual external remedies were employed conjointly with the atoxyl injections, and a part of the cure at least is fairly attributable to the local treatment.

In addition to these cases of psoriasis the author has recently had an opportunity to try atoxyl in a severe case of pemphigus, occurring in a man sixty-eight years old. Before coming under his care this patient had been given considerable quantities of Fowler's solution, without controlling the eruption, until severe abdominal pain and diarrhea compelled its suspension. At first a daily injection of 30 minims of a 10-per-cent solution was given, and this was continued for about one week. At the end of this period there was a marked improvement in the patient's condition; new lesions had ceased to appear and the old ones were drying up. The atoxyl was now stopped through some misunderstanding, and there was shortly a new outbreak of blebs on all parts of the body. The injections were then resumed; this time two of 30 minims each were given daily at intervals of twelve hours, and at the end of one week the disease again seemed to be under control. The patient's condition is now better than at any time since the beginning of the disease. Notwithstanding the large quantity of the drug taken, the only toxic symptom noticed was marked tremor of the arms and legs, which came on after 6 grains a day had been taken for six days; but this promptly disappeared with the temporary suspension of the treatment.

From the author's somewhat limited experience he is led to conclude that atoxyl, like sodium cacodylate, does not possess any therapeutic properties not to be found in arsenous acid, Fowler's solution, or the arsenate of soda. Owing to its great solubility in water and freedom from irritant properties, it is, however, especially adapted to hypodermic use—a method of using arsenic often preferable to administration by the mouth, and one which usually gives superior therapeutic results.

In conclusion, the author has a word to say about an untoward effect of arsenic which deserves the serious consideration of every one who essays to use this potent drug in chronic diseases. It is now well established that the long-continued use of arsenic, especially in considerable doses, may be followed by circumscribed keratoses on various parts of the body, and more particularly on the palms and soles; and Mr. Jonathan Hutchinson some years ago called attention to the fact that epithelioma may develop at the site of these keratoses, an observation which has since been confirmed by a number of other observers, so that there are now at least twenty cases of such arsenical epithelioma to be found in the literature.

SYPHILIS.

NEISSER in the course of a paper on this subject published in the *British Medical Journal* of October 10, 1908, reminds us that experiments have shown that outside the animal body the virus rapidly dies, and that it remains alive and virulent for at the most a few hours. Thus there is no very great danger of mediate transmission by means of objects. More recently it has been possible to determine how the virus can be destroyed by physical and chemical means. We have now valuable knowledge as to what disinfection methods can best be used in order to avoid infection. Metchnikoff, as is well known, by experiments on animals and on a man has shown that by inunction at the site of inoculation of a 33½-per-cent calomel ointment infection with syphilis can be avoided. There is no

doubt that by the application of this ointment very many syphilitic infections could be avoided, and the writer holds it to be the duty of every doctor to publish this fact wherever he can, and to advise this individual prophylaxis. But, in his opinion, Metchnikoff goes too far when he designates his method as infallible. Both in man and in animals it has already been shown that infection cannot be avoided with absolute certainty by the use of Metchnikoff's calomel ointment. Moreover, he believes that we can find still better means of disinfection than the use of this ointment. Energetic washing with sublimate solution 2 in 1000 and 3 in 1000 gives very good results. Further, the following composition is to be recommended:

℞ Hydrarg. bichlor. corros., 0.25;
Natr. chlorati, 0.5;
Aq. destill., 2.0;
Alcohöl. absolut., 0.5;
Glycerini, 100.00.

Or, instead of glycerini 100.0:

Ung. paraffini, 80.0;
Glycerini, 20.0.

It would also be useful if we could cause everybody who risks infection by impure connection to lubricate the penis before cohabitation. Without doubt a syphilitic infection can be best avoided by lubrication before cohabitation combined with disinfection afterward.

SCIATICA AND ITS TREATMENT.

In the *British Medical Journal* of October 10, 1908, JAMES tells us that the subject of the treatment of sciatica has been his special study ever since he started practice thirty years ago. In the year 1883 he advocated in the *British Medical Journal* the injection of sulphuric ether, and he has always treated his cases of sciatica by this method. He has now brought up the subject because several foreigners claim to have just discovered the treatment he has been employing for many years without one case of failure. He has always produced marked relief, and in the majority of cases cure, and wishes his method of curing this distressing disease were more usually adopted.

The sciatic nerve is, as we all know, the seat of the form of neuralgia known as sciatica, and it has frequently been cut down upon or stretched or acupunctured for the relief of pain. This nerve has also been stretched in cases of locomotor ataxia. In order to define it on the surface a point is taken at the junction of the middle and lower third of a line stretching from the posterior superior spine of the ilium to the outer part of the tuber ischii, and a line drawn from this to the middle of the upper part of the popliteal space. The line must be slightly curved, with its convexity outward, and as it passes downward to the lower border of the gluteus maximus it is slightly nearer the tuber ischii than the great trochanter, as it bisects a line drawn between these two points.

As to the symptoms of sciatica, we may notice that flexion of the body in an erect position with the legs extended frequently causes pain in the stretched nerves, where the usual sign of sciatica (pains on raising the stretched leg) is not felt. Hesse says the disorder is more frequently bilateral than is usually believed. In these cases one should not overlook the knee-jerk, and one should also look for other signs of tabes. The question of the bilateral nature of the disease seems closely connected with that of its migration. The migration may not only take place from one side to another but from back to front, from the sciatic to the crural, or from below to above, from one plexus to another. Many patients have no peculiarity of gait. These factors account for the abnormal gait in sciatica: (1) Severe scoliosis, which makes the abnormal carriage apparent in walking; (2) violent pains in walking, which demand care of the diseased leg; (3) paresis or paralysis in some group of muscles.

The body avoids carefully the oscillations necessary for balance, the gait becomes cautious, the steps short, tripping, and groping, as it were—not unlike the gait sometimes met with in vertebral caries. But the pain more often causes asymmetry

of gait, and in most of these cases the sufferer from sciatica tries to relieve the tension of the nerves by flexion of the hips. If there is still pain he hops along, hardly touching the ground with the tip of the foot on the affected side. This may be called the one-sided or hopping gait. There being no special gait characteristic of sciatica, we must be prudent to guard against mistaking it for anything else — for example, coxitis.

The author here alludes to the injection of sulphuric ether, combined with either cocaine or morphine. After having failed by local and constitutional means he begins by injecting subcutaneously ether 5 minims and cocaine (1 in 12) 2 minims once a day into the sciatic nerve with a needle 2½ inches long, after marking out the position of the nerve by measurement and touch. Unless the patient involuntarily shoots out his leg as the puncture is made the nerve has not been touched. The first case the author treated by this method was an old man who had suffered for some years and had his nerve stretched at one of the London hospitals. He went from hospital to hospital, but without appreciable relief. This patient the author attended in 1883, and believes he was the first to adopt this treatment for sciatica and lumbago. Fifteen years have now elapsed since he thus came to him as to a last forlorn hope, and during all this time he has sustained only one recurrence of sciatica, and that of a very slight character, speedily dispelled. This patient is now enjoying a hale old age in absolute freedom from sciatica.

Since then the author has treated numerous cases, with exceptionally good results. He mentions also one other case of cure of this distressing disease.

We have, of course, to contend against a dislike of injection, which is felt because it is what the public call "an operation," but this dislike will diminish very quickly when these cures become known, and we shall find our patients readier to accept the treatment by injection if we can tell them of the many cases we have treated with successful results.

RESUSCITATION OF THE APPARENTLY DROWNED.

The Metropolitan Police of London asked the Royal Society of Medicine to recommend the best method for treating the apparently drowned. The society reported as follows:

In forming an opinion as to the best means to be used for the resuscitation of the apparently drowned, it is necessary to remember that they must be adapted to the circumstances under which drowning usually occurs. In other words, they must be simple, the directions for making use of them incapable of being misunderstood, available under a variety of circumstances, and capable of being carried out by a single person. The committee appointed by the Council of the Royal Society of Medicine are of opinion that Professor Schäfer's method fulfils these conditions better than the Sylvester or Marshall Hall method. It has also, in their opinion, other points which render it preferable: (1) The prone position favors the escape of water, and of the mixture of water, mucus, and other secretions, through the mouth and nose, which, when present, play so important a part in drowning. (2) A larger amount of air can be made to pass in and out of the chest by pressure and relaxation applied in Professor Shäfer's manner than in either of the others. (3) Upward pressure on the diaphragm is more effectually obtained by it than by the other methods, and exerts more direct pressure on the heart, thus stimulating it to action. (The value of such stimulation of the heart has not, in the opinion of the committee, received sufficient attention in the older experiments on living animals.) (4) There appears to be less risk of injury to the chest, the liver, and the other abdominal organs from pressure exerted according to Professor Schäfer's directions than by the Sylvester method, which has, in inexperienced hands, led to fracture of ribs, and not improbably to rupture of the liver.

The committee are also of opinion that in recommending the Schäfer method at-

tention should be drawn to the desirability, when natural breathing has recommenced, of placing the patient in the semiprone position on his right side, as pointed out by Dr. Bowles, so that any frothy fluid present should gravitate from the bronchi of the left to those of the right side in order that air may more freely enter the left lung; not a few instances of death being reported in persons placed in the supine position after natural breathing had been restored.

DIET IN DIABETES MELLITUS.

In the course of a lecture delivered by PAVY and reported in the *Lancet* of December 12, 1908, he points out that what is comprised under the term "restricted" diet has a very varied meaning. In reality it should mean the exclusion of carbohydrate as far as can be practically done, and this implies that the substitute for breadstuff employed should be virtually, and not merely nominally, free from starch. There are foods of this kind to be obtained from establishments in London, whose praiseworthy and successful efforts have been brought to bear to produce it. Unfortunately another side presents itself that nowhere escapes being encountered, and here the foods contain a varying amount of starch, which may even, in some cases, be found to reach that belonging to the breadstuff food in common use. A moment's reflection will suffice to show that no proper knowledge can be obtained with reference to the matter under consideration in the absence of a knowledge of the actual state of the food consumed by the patient.

Generally, at an early stage of the disease (children excepted), the effect of putting the patient on a restricted diet is not attended with the production of an appearance of the acetone bodies. At a later stage, in the case in which dieting has not been in a proper manner carried out, and in which sugar has been all along voided, the effect of cutting off carbohydrate food may be expected to lead to a certain amount of show of the acetone bodies. Afterward, when as a result of the dieting the sugar is reduced and subsequently removed, the acetone bodies may also, in the course of a little time, be counted upon to make their disappearance.

In a case of a somewhat advanced nature, in which the acetone bodies have already become present, the change of diet leads to a certain amount of augmentation of them, but the augmentation that shows itself does not afterward intrinsically tend to proceed further. In fact, the future issue is dependent upon the stage of disease that has been reached. If too advanced to admit of rectification, the disease and its associated acidosis make headway together until it happens that the acidosis becomes greater than the power of the system to withstand, and death ensues. If not sufficiently advanced inevitably to lead to this issue, and the case should be of a suitable type subsequently to yield, the sugar, as time goes on, may be found to become more and more reduced and ultimately to disappear, and with this the acetone bodies may be expected to follow a similar, but more tardy, course. In this way, from what may have seemed at the beginning a very unpromising state, progress may be made through the instrumentality of the influence exerted by the food in bringing down the sugar, for this is at the root of the change induced, to the attainment of a condition in which a totally new aspect is given to the life tenure prospects.

There have been those who have deprecated the strict diet in the treatment of diabetes on account of the relation that has been referred to between acetonuria and the exclusion of carbohydrate from the food. The effect of the acids of the acetone group in leading up to coma should, it has been suggested, demand first consideration and prohibit the cutting off of carbohydrate food. If such a maxim were acted upon, diabetics would stand, as indeed they did in former times before dieting was applied as it is now, in a very bad position. The author asserts that it is within his own recollection to have known that the outlook in diabetes was vastly different from what it

is now. Experience shows that the way to get rid of the acetone bodies is to bring the sugar down, and if this is not done all that can be looked for is that they will go on increasing. The sugar in the system, by its direct toxic influence, may be regarded as a main factor in causing the acidosis in the first place to set in, and then to grow. In a case in which sugar and the acetone bodies have existed, and, by cutting off carbohydrate, have become removed, as long as sugar-free urine is maintained there is no return of the acetone bodies. Let sugar reappear by relaxation of diet, and a return of the acetone bodies may be expected to likewise occur. The writer states that he could cite many cases in which such has happened, and has further observed a renewed disappearance on a return to the proper food.

The effect of what he has stated is to suggest that, in ordinary cases, the cutting off of carbohydrate should at once be put into force for the purpose of dealing with the acetone bodies. At the same time, however, he does not mean to say that cases may not now and then present themselves in which it would be unwise to adopt such a course. In extreme cases, in which the patient is on the brink of the supervention of coma, a little increase in the acidosis existing may suffice to turn the scale and bring about a fatal issue. The sudden withdrawal of carbohydrate has been seen to lead to such increase, and thereby a demand is created for the exercise of judgment in connection with the course to be adopted.

The frailness of the condition as a whole, in the circumstances under consideration, has also to be taken into account. We know how easily, through the general state, the acetone bodies may be increased. A severe attack of migraine, for instance, may send them up, and influenza, pneumonia, etc., may do so sufficiently to suddenly bring about the supervention of coma. There is too much instability of system to withstand the influence of sudden change, and thus an added condition presents itself to that emanating from the direct action of the cutting off of carbohydrate on the dissociation process, which tends to promote the augmentation of the acetone bodies passing into the blood.

EXPERIMENTS ON THE GERMICIDAL ACTION OF COW'S MILK.

We have on a number of occasions called attention to the important researches along this line. In the latest, contributed to the *Journal of Infectious Diseases* of December 18, 1908, HEINEMANN and GLENN reach the following summary and conclusions:

1. The decrease of bacteria in fresh cow's milk is more decided if fairly large numbers are inoculated than if small numbers only are present.

2. The relative increase of bacteria in milk is more pronounced in milk heated to 75° C. or 100° C. than in raw milk or in milk heated to 56° C.

3. The difference in the relative decrease in numbers of bacteria in milk moderately shaken and vigorously shaken is not marked, if this shaking is done by hand. Some difference was observed, however, and this difference might be more pronounced if the milk were shaken more violently.

4. Some species occurring naturally in milk decrease considerably in numbers during the first four or five hours, some decrease slightly, some hold their own or even increase.

5. Milk inoculated with pure cultures of bacteria seems to restrain to a marked degree the multiplication of these bacteria for several hours at 37° C., and for a somewhat longer period at room temperature, excepting in the case of strept. lacticus, which increases from the beginning, although it may be inhibited to some extent.

6. Heating milk to 56° C. for thirty minutes does not entirely destroy the power to restrain the multiplication of bacteria; this power is weakened however, and at 75° C. is destroyed completely. This fact, together with the fact that milk serum agglutinates some species of bacteria *in vitro* to a marked degree, seems to favor the assumption that

agglutinins are in part responsible for the apparent decrease of bacteria in fresh milk, since bactericidal substances are destroyed by heating to 56° C. for thirty minutes.

7. The agglutination of certain bacteria in milk serum seems to bear some relation to the apparent decrease in numbers of bacteria observed in fresh milk, but this is probably not the only factor causing such reduction.

DRUGS IN CARDIAC THERAPY.

In an article on this topic in the *Cleveland Medical Journal* for December, 1908, McGee reminds us that the value of the circulatory stimulants in conditions of disordered heart action and lack of vascular tone is certainly decided, and of the agents upon which we are accustomed to rely in cardiac insufficiency and its results, digitalis still retains the first place and is frequently almost indispensable. We are familiar with the indications for its use, especially in lowered tension and edema, and know it is but rarely required when compensation is complete; when this is lost, however, digitalis is our main reliance, in whatever form it may be chosen, and only when it fails or disagrees do we as a rule seek a substitute. We know that it increases tension and that it is a mistake to give it when the vascular tension is already high. Extreme tension in the vessels imposes extra work upon the heart, and the effort should be to bring it near the normal in tone, with digitalis if this be too low, or by the vasodilators, as the nitrites, should it be too high. In fact the vascular as well as the cardiac condition should always be considered.

The administration of digitalis is to some extent influenced by the character of the lesion present. There is quite a difference of opinion as to the advisability of its use in aortic lesions, but it is generally asserted that in these cases with failing compensation the pulse under its influence should be held at 80 or above, while in mitral disease its reduction to normal or even below is often followed by the best results. In fact in aortic cases strophanthus or sparteine might be preferable, as neither contracts the vessels, while if digitalis be chosen, its union with a vasodilator is desirable. As to the choice of preparation, the general preference of the profession for the infusion, when dropsy is present, is borne out by the pharmacological investigation of the drug. A fresh infusion from the leaves is, however, necessary, since a dilution of the fluid extract or tincture is an essentially different preparation. The tincture is usually preferred for its cardiac action, the principles exerting a tonic action on the heart being most soluble in alcohol. Of its active principles digitalin probably most nearly represents the action of the drug itself in improving cardiac and vascular tone. The author has used it with satisfaction and has come to look upon it as a reliable remedy, seldom giving over 1/60 to 1/30 of a grain, although doses as high as 1/10 of a grain or even more of Merck's amorphous digitalin have been recommended.

As to digitoxin, the author's use of it has been largely limited to the soluble form known on the market as digalen, and his experience is greatly in its favor. He has used it for some time, and in a number of cases associated with extensive dropsy has found it of the greatest benefit when the usual remedies failed, and it has seemed to him to do best in those cases without nephritic involvement, cases of primary cardiac disease. Digitalone, a solution of the active principles, is also an efficient preparation and not apt to disagree. Concerning the dosage of the drug the therapeutic result, independent of the amount given, is the best index, and one is justified in an extreme case in carrying the dose much beyond that usually recommended. In the administration of the drug, bearing in mind its possible cumulative effects, moderate doses at fairly long intervals, and occasionally intermitting its use for a few days, render it a safe remedy in chronic cases for an indefinite time. High arterial tension and myocardial degeneration contraindicate its use, and a pulse suddenly dropping below the normal or a diminution in the amount of urine justifies its withdrawal.

In addition to sometimes disturbing the digestive organs, the drug may occasionally produce mental symptoms, as delirium.

CHRONIC INTESTINAL CATARRH.

MILLER, in an article in the *Boston Medical and Surgical Journal* of December 16, 1908, says in regard to the drug treatment of this state that the chief use of drugs is to help check the spread of the inflammation, to help reduce the excretion of mucus, and in a less degree to help clear out the bowels, when that is necessary, and finally, to act as so-called intestinal disinfectants.

Of the few drugs the author has found useful, the tannin preparations, as astringents, are probably the best, especially tannigen, bismuth, bismuth subnitrate and subgallate, bismutose, and bismuth betanaphthol.

As for the antiferments and antiseptics, thymol and those like it check fermentation. Bismuth salicylate, bismuth betanaphthol, and menthol also check it. Resorcin, chloral hydrate, silver nitrate, but especially benzonaphthol, stop fermentation. The latter has the advantage that it passes through the stomach unchanged, and does not irritate the intestine where it is split up into fresh naphthol. Ewald has tested this drug and recommends it either alone or combined with bismuth salicylate and resorcin in doses of 30 to 75 grains a day. The writer has used ichthyol in capsules every four hours, 1½ grains, with success. In most cases more frequent doses irritate the stomach or they cause eructations of the drug. He mentions ichthalbin, an albumen composed of ichthyol, which he understands to be insoluble in the stomach, and which is said to be useful with children.

Bismuth subgallate is one of the old standbys which is excellent for diarrheas. The lime compounds are practically all useful.

The best method of administration, as a rule, is to begin with as large a dose as the case will stand and decrease it gradually as improvement appears.

The use of mineral waters in a few cases gives excellent results. Carlsbad water, of which sodium sulphate, sodium bicarbonate, sodium chloride, and potassium sulphate are the ingredients, given very hot in small doses, helps clean up the intestinal mucous membranes and has a stimulating effect on the stomach secretions. Rubinat Condal water, of which sodium sulphate is nearly the whole mineral present, with a very little magnesium sulphate, is useful in cases which show some liver involvement and can stand one or two loose movements a day for a short time. Given hot in small amounts before breakfast it acts quickly and does no harm.

It goes without saying that other conditions, as the stomach, heart, blood, blood-vessels, and kidneys, have been considered before mineral waters are used. Mineral waters are a study in themselves, which we have not learned to use satisfactorily in this country. Their best use is in stomach and certain liver and gouty diseases.

THE NEW SILVER SALTS AS COMPARED WITH SILVER NITRATE IN THE TREATMENT OF OPHTHALMIA OF NEW-BORN CHILDREN.

HASKET DERBY, in the *Boston Medical and Surgical Journal* of December 17, 1908, asserts that the sovereign efficacy of silver nitrate in the ophthalmia of new-born children has always been with him an article of faith, and thus one of his most cherished beliefs is marked for attack. He used it exclusively during his service of more than thirty years at the Massachusetts Charitable Eye and Ear Infirmary, and believed in it then, as he does to-day. In an exceedingly valuable and instructive paper, read by Dr. Cheney at a recent meeting of the Massachusetts Medical Society, the following statement is quoted by the author: "At the Eye and Ear Infirmary we have practically given up the use of silver nitrate (in speaking of the treatment of this form of ophthalmia), replacing it by the newer salts, protargol and argyrol." He moreover urges that the "facilities for treating this class of cases at the Infirmary are not excelled, if

they are equaled, by any institution in the world."

And this it would be difficult to dispute. A competent corps of day and night nurses is maintained, and in addition to the local remedial applications, the lids are cleansed every fifteen or twenty minutes day and night as long as the discharge persists.

Fortunate, indeed, the patients who gain admission to the Infirmary. But the disease is a not uncommon one in this and in all communities. It is so widely spread that fully one-tenth of the blindness existing in any country proceeds from this cause. What, then, is to become of the children who cannot enjoy such faithful and excellent care? A natural inference from Dr. Cheney's paper is that here, too, we are to rely on protargol and argyrol, silver nitrate being ignored.

The writer claims that silver nitrate diminishes the discharge more rapidly than either of the new salts. This claim is made for cases treated under ordinary circumstances, as out-patients or at their homes. It is impossible that every one should have the opportunity of receiving hospital treatment or attention from a trained nurse. With them there cannot be kept up that continual cleansing of the eyes which the writer believes to be the main factor in the success of the Infirmary treatment.

During his period of service at the Infirmary the cases of ophthalmia neonatorum rarely entered the house on account of the danger of infection, the scarcity of beds, and the frequent impossibility of keeping mother and babe together. The patients remained at home and made a daily visit. The eyes were first thoroughly cleansed, the lids then everted and their inner surface painted with a two-per-cent solution of silver nitrate. This was applied by means of a camel's-hair brush, which was packed in a wrapper and retained by the person bringing the child. If the discharge was profuse and thick and the conjunctiva of the lids swollen and spongy, bleeding spontaneously, it was customary to lightly scarify the surface and encourage the flow of blood, of which sometimes as much as a teaspoonful would escape. In place of the silver solution the lapis mitigatus (a crayon composed of one-third silver nitrate and two-thirds saltpeter) would then be thoroughly applied. In particularly aggravated cases the patient would be brought again at the close of the day, and the treatment renewed. Of course the strictest attention to cleanliness would be urged on the mother.

A notable improvement would generally occur at once. The discharge would rapidly lessen, lose its thickness, and finally cease. The corneal affection, if it existed, would be arrested. General recovery would be rapid and certain. The writer can truthfully assert that he never saw a case do badly if it were taken charge of before irreparable corneal injury had been inflicted.

A word now in regard to the efficacy of the new silver salts, as well as the estimation in which they are held.

Experiments relating to the bactericidal properties of these agents were made in the laboratory of the Eye Infirmary as well as elsewhere. The conclusions relating to argyrol were as follows: "Its bactericidal power is exceedingly weak. In a large series of observations a growth of the aureus was obtained after exposure to the 10-per-cent, 25-per-cent, and 50-per-cent solutions for one hour, one hour, and two hours. . . . Its action was uncertain, and while occasionally the germs were affected by a twenty-minute exposure, more often the cultures taken at the end of one hour showed a growth when examined twenty-four hours later." (Dr. George S. Derby: "An Experimental Study on the Bactericidal Power of Various Silver Preparations." *Boston Medical and Surgical Journal,* vol. clv, No. 13, page 342.)

The same examiner found the bactericidal action of protargol "efficient, though not so efficient as that of nitrate of silver." But Professor Saemisch, of Bonn, should be cited in this connection: "The anticipations that had been formed in regard to the efficiency of the new silver salts, more particularly of protargol, in the treatment of the blennorrhea of new-born children, do not seem to be realized. It is true that

Wicherkiewicz saw good effects from them, but in some cases he was obliged to have recourse to silver nitrate as well. Darier spoke well of this agent, which he used in the strength of from 20 per cent to 50 per cent; Fürst, too, got good results, but Pflüger was unable to confirm them; Dissler found protargol nearly as efficacious as silver nitrate in blennorhea of new-born children, but he had to make his solution ten times as strong.

"In the clinic at Bonn this agent was repeatedly used in blennorrhea of new-born children, but proved entirely inefficacious, having in several instances absolutely no effect and obliging us to resort to the nitrate of silver solution. It acted favorably in but one case. It is evident that the preparations of this agent now on the market have no uniform strength and that it should always be prepared fresh. It becomes, therefore, inadvisable to experiment with this agent in a disease requiring active and sure treatment, which we are certain to obtain in the application of silver nitrate." (New Graefe-Saemische Handbook of Ophthalmology, Dasicule 8, Part 1, page 261.)

The writer, therefore, reiterates his belief that the good results obtained at the Infirmary are due rather to the systematic and thorough cleansing of the eyes than to the remedies employed. His own faith in nitrate of silver remains unshaken, and in his opinion it is the only agent that should be used in cases treated outside a hospital, either at the office of the surgeon or the home of the patient.

TUBERCULOSIS OF THE SKIN.

BURNSIDE FOSTER in the *St. Paul Medical Journal* for November, 1908, says in these states general treatment should always be given, but since that does not differ materially from the general treatment of other forms of tuberculosis the writer confines himself to the local treatment of tuberculosis of the skin. The local treatment of tuberculosis of the skin may be either (1) surgical, under which heading he refers to excision, curetting, scarifying, and cauterization, either with the Paquelin or galvanocautery; (2) chemical, which includes the use of various local remedies and chemical caustics; and (3) treatment by means of various forms of light and radiation. This includes concentrated direct sunlight, Finsen lamp, *x*-rays, and radium.

Any one or all of these methods of treatment may be used in the same case. In early cases, in which the lesion is circumscribed and conveniently situated, complete excision is often the most appropriate treatment. Curetting, if this method is used, should be very thorough, sound as well as diseased tissue being removed over and throughout the depth of the entire patch, and it should be immediately followed by cauterization, either with 50-per-cent chloride of zinc, caustic potash, or pyrogallic acid. The actual cautery is best suited for the destruction of small isolated nodules, and is often very satisfactory for the treatment of lesions of this character; such nodules may also be very effectually destroyed by the high-frequency current, using a sharp-pointed carbon electrode.

The local remedies upon which the author depends chiefly in those cases in which they are indicated are salicylic acid and creosote, 20 per cent of the former and 40 per cent of the latter, caustic potash, silver nitrate, lactic acid, pyrogallic acid, and chloride of zinc in 50-per-cent solution. These substances are used in various strengths and combinations, according to the indications present.

Treatment by Light and Radiation.—The simplest form of light treatment is by concentrating the rays of the sun through a hand lens upon the lesion. This is a form of cauterization, and has been very successful in a few cases. Concerning the Finsen light treatment, which with the original apparatus as used in Copenhagen is not available in this country, the author regards it as probably the best and most successful treatment for lupus. The expense of installing and maintaining the apparatus, however, the long period of treatment necessary—from one to two years of daily treatments of an hour or

more, each with special attendants—make it only possible in a largely endowed public institution. The various modifications of the Finsen lamp have all been failures.

The *x*-rays are of very great value in the treatment of lupus, and in some cases, several in the author's own experience, have sufficed to bring about a complete cure without other means. It has the great advantage over the Finsen method that much larger areas can be treated at a time, the exposures needed are shorter and much less frequent, and the cure is brought about in a shorter time. Usually it will be best to use other methods in combination with the *x*-ray treatment.

The great advantage of the *x*-rays in the treatment of lupus lies in the fact that a large area of disease may be treated at one time, and that the treatment is painless. In those cases which respond favorably to *x*-ray treatment the results are seen in a comparatively short time, and the resultant scars are less disfiguring than after other methods. Why it is that some cases are readily cured by *x*-rays and that others improve but little or not at all it is impossible to say, nor is it possible to predict in advance what the result of the *x*-ray treatment will be in any case.

TREATMENT OF SEVERE LUNG DISEASES BY ARTIFICIAL PNEUMOTHORAX.

BRAUER (*Archiv für klinische Chirurgie*, Bd. 87, Heft 4) has employed artificial pneumothorax in 60 patients—one with severe hemoptysis, one with extensive pulmonary gangrene, four with bronchiectasis, and the remainder with severe phthisis. In the case of hemoptysis and the case of gangrene the patients died in spite of the treatment; in two of the cases of bronchiectasis, expectoration was stopped and did not return after the pneumothorax had disappeared. In one case the febrile attacks which formerly occurred were eliminated.

In severe pulmonary tuberculosis the most extraordinary effect is that upon the temperature, which as a result of the treatment either remains normal or at most rises for only a short time. On account of the collapse of the lung the lymph circulation is rendered less active, hence toxin resorption is diminished. At the same time on account of the stagnation of the lymph and toxin the formation of new connective tissue is stimulated, as a result of which there is a tendency toward encapsulation of the lesions. This was observed particularly at the autopsy in three cases. In many instances the excited heart action and the dyspnea disappeared; also the expectoration almost or entirely ceased. In the majority of cases the body weight increased. In none of the cases did pulmonary hemorrhage occur after establishment of the pneumothorax, although it had frequently occurred before. The general condition was improved, and in several cases it was noted that as the pneumothorax diminished the old difficulties reasserted themselves. In some patients, on the other hand, the progress of the disease was only temporarily or not at all influenced.

Frequently it appears that the lesions of one lung are favorably influenced by collapse of the other, probably because of the active hyperemia produced. However, one should always determine the condition of the opposite lung before producing pneumothorax, because a recently developed or extensive process in one lung is a contraindication to the production of collapse in the other. Indigestion due to extensive toxin absorption is no contraindication, although intestinal tuberculosis is. The pneumothorax must be continued for months and years in order to effect a cure.

Although the pneumothorax frequently remains dry in some cases there occurs more or less extensive serous exudate; this was followed in some cases by slight fever, which soon disappeared without bad results. In four cases there was set up tubercular pleurisy with unfavorable results.

In 15 cases the collapse of the lung was interfered with by adhesions. Sometimes these were broken down, even if it became necessary to make a large opening in the chest wall. In one case a thoracoplastic operation was done to release the lung.

PERICOLITIS SINISTRA.

ROBERTS (*Liverpool Medico-Chirurgical Journal,* July, 1908) calls attention to the fact that coincident with the increased frequency of appendicitis cases of colitis and pericolitis are more commonly encountered. In the mildest forms of colitis the mucous membrane may be assumed to be irritated and abraded in patches with infiltration and thickening of the muscular coat and pain suggestive of irritation and involvement of the overlying peritoneum. In more advanced cases the peritoneal involvement leads to the formation of lymph which covers the bowel and often forms longitudinal bands on its surface. This newly formed lymph is apt to form adhesions to contiguous structures. Either with or without perforation of the bowel peritonitis may develop, and may be localized or generalized.

The history given by patients is quite typical. There is a long period of constipation, relieved only by aperients, varied at times by spells of diarrhea. The feces are made up of hard masses covered with flocculent mucus. The next symptom developed is pain referred to the left side of the abdomen, from the costal margin to the iliac crest. It is aggravated by lying down, particularly on the left side. Later there is tenderness on pressure. Pain may become temporarily severe and colicky in character. The pain may be aggravated by the taking of food and may be associated with nausea or vomiting. The left half of the abdomen is fuller than the right. In the left iliac fossa the iliac colon may be felt dilated and full of fecal matter.

Roberts states it is usually possible to demonstrate that the colon is thickened, and that it appears unduly fixed when rolled under the finger.

There is always pain, elicited by pressure, and usually anemia, loss of appetite, occasional headache, quickened pulse, and mental depression. After emptying the bowel by copious enemata it can still be easily felt and examined. Normally it should be impalpable. It is found as a thickened cylinder of less diameter than a normal colon, or as a thickened flat ribbon, giving a soft, doughy feel. One factor common to all the cases is prolonged constipation.

As to treatment, after thorough irrigation and emptying of the bowel, using both enemata and laxatives, a mild antiseptic colonic lavage is indicated, together with intestinal antiseptics, such as salol or guaiacol. If these measures fail it may be necessary to resect the damaged portion of the bowel. The circumscribed form of pericolitis follows ulceration and very often leads to mistaken diagnosis, the tumor being strongly suggestive of carcinoma.

TREATMENT OF CANCER WITH THE HIGH-FREQUENCY SPARK AND HIGH-TENSION CURRENT.

CZERNY (*Archiv für klinische Chirurgie,* Bd. 86, Heft 3) voices the common opinion that the end-results of operative treatment of cancer are much less satisfactory than they should be, and says that he has considered it his sacred duty to study the Keating-Hart method of treating cancer by means of the high-frequency spark and current.

The sparks destroy the cancer cells. In case of carcinomatous ulcers with metastatic lymph nodes, the nodes are removed if soft and not adherent and the capsule treated with the spark; when the nodes are hard and adherent a needle attached to one pole is inserted into them, while the other pole is applied over the ulcerated surface.

In deep-lying cancer the author extirpates the growth wherever possible and applies the spark to the wound surface. The wound is not sutured so as to get healing by first intention, but is only partially closed with stitches and the portion remaining open is tamponaded. This plan is adopted not only to give access to further treatment, but because a cancerous operative wound if healed by first intention is much more apt to be the seat of recurrence than if allowed to heal by suppuration. In cancer of the face it is much better to delay until a future time the plastic repair of the defect resulting from operative removal than to do it at the

time of operation, because of the danger of recurrence if the defect is closed at once.

In using the Keating-Hart treatment anesthesia is necessary, as it is a painful procedure. The application lasts from ten to forty minutes.

Czerny had used this treatment on 59 patients, making in all 120 applications during the five months he had used it. Although it is too early to speak of definite cure, his results so far have been favorable. Five cases of carcinoma of the face, one of which was multiple and wide-spread, were cured in one to two sittings, and at the time of report were in good condition. A case of carcinoma of the leg which had recurred three times was almost completely healed in three sittings. Likewise cancer of the bladder, prostate, tongue, rectum, pharynx, jaw, vulva, mamma, uterus, etc., has been treated in some cases with good results and in others without improvement.

Czerny is of the opinion that the sparks have a very salutary effect upon surface cancers and greatly facilitate their healing. In hard infiltrated ulcers excision must precede this treatment. In deep-seated cancer which is operable it perhaps lessens the danger of recurrence. In inoperable and recurrent cancer the suppuration of hemorrhage and pain can be controlled, and in that way life lengthened and suffering rendered less.

Morphine-hyoscine-chloroform anesthesia is the best, as ether could be used only with great caution because of its inflammability.

SUCCESSFUL RESECTION AND SUTURE OF THE ABDOMINAL AORTA.

Braun (*Archiv für klinische Chirurgie*, Bd. 86, Heft 3) in the course of a dissertation upon ganglioneuroma reports what he alleges is the first case in which the abdominal aorta has been successfully resected and sutured. The subject was a girl of 6½ years, brought to the hospital on account of an abdominal tumor, although she was not complaining.

On examination she was found pale but moderately well nourished; heart and lungs were normal; urine normal; no disturbance of sensibility or motility of the limbs; no blood changes; no fever. In the left side of the abdomen was a very large tumor, which at its upper part was under the ribs and caused them to be sprung outward, and at its lower part reached down into and filled the iliac fossa; it also extended to the right beyond the midline. Over the tumor the percussion sound was dull. The tumor was roundish in outline except between the border of the ribs and the navel, where it showed an elevation; it was hard and non-fluctuating, and could be displaced well toward the right; it was not tender to pressure. On inflation of the large intestine it was found that the splenic flexure and the descending colon were pushed well forward and toward the midline. These findings led to the diagnosis of retroperitoneal tumor, probably of renal origin, but no conclusion as to its exact character was arrived at.

In operating the author made the incision which he has used for the last fifteen years in operating upon large kidney tumors. This incision begins at the midline two or three centimeters below the navel, runs outward and upward and ends at the angle made by the twelfth rib and the erector spinæ muscle. The posterior layer of peritoneum is cut in the same direction, and the peritoneal cavity closed off by suturing the two layers of peritoneum together. This gives an access to the retroperitoneal space which no other incision gives. The child was operated upon January 13, 1908. At the upper part of the tumor was the left kidney, unaffected except for its upward displacement; the ureter and the spermatic vein ran down over the anterior surface of the tumor. The vein was severed between two ligatures. The tumor was not well supplied with blood and was easily shelled out, except for its broad pedicle, which sprung from in front of the spinal column. It was found that at this place the aorta in its portion between the renal artery and the bifurcation was embedded in a furrow in the tumor. Separation was difficult and was rendered more so by four large arterial branches which arose from the aorta and immediately entered the tumor.

In removing the tumor the wall of the aorta was so lacerated and thinned as to make serious hemorrhage imminent, to avoid which the vessel was compressed by means of a rubber tube above and below the tumor and the tumor quickly removed. An effort was then made to repair the aortic wall by sutures, but this did not succeed, for after the abdominal wall was closed the lower limbs were white and cold and the femoral pulse could not be felt. The abdomen was again opened, but the aorta was found so injured that stitches would not hold. Therefore, about two centimeters were removed by cross-section and the divided ends anastomosed by circular suture after the method of Carrel and Stich. After loosening the clamps there was a little bleeding from the needle punctures, but this was stopped by iodoform gauze tampons kept in place. After this the iliac pulsation was normal and the lower limbs became red and warm. The wound was closed, except anteriorly an opening was left for the gauze tampon and posteriorly for a small drain. The operation lasted two hours and was well borne.

After eight days the stitches and drain were removed, and two days later the gauze tampon. At this time there had been no after-bleeding and the circulation in the lower extremities was undisturbed. The child was kept in bed four weeks, and on February 24 was discharged in good general condition. Three months later it was in blooming health. The tumor which was removed weighed 1900 grammes, and was found on microscopic examination to be a ganglioneuroma which doubtless had its origin in the abdominal sympathetic.

SURGICAL CONDITIONS OF THE KNEE-JOINT.

TENNEY (*Annals of Surgery,* November, 1908) thus concludes an article on this subject containing many illuminating case histories:

1. Asepsis and drainage are more essential in knee-joint work than in laparotomies because of the difference in the skin of the operative fields and in the natural drainage of the two cavities.

2. Sepsis and immobility mean ankylosis. Drainage and mobility may leave some motion.

3. There is an increasing tendency toward operative repair of patellar fractures and an increasing use of absorbable material. This should be the rule, to which exceptions may sometimes occur.

4. By far the most common mechanical cause of trouble within the joint is the tab from the infrapatellar pad. This may be a part of a general obesity, in which case the usual antifat treatments are appropriate. If it be found in a vigorous and otherwise normal person it should be removed. Some temporary relief may be obtained by properly applied adhesive straps, but a cure only by removal.

5. Prepatellar bursitis can be cured by incision and drainage. Other bursæ should be dissected and removed.

6. Ligamentous injuries must be carefully treated, and some must have operative repair to prevent recurring or constant disability. No apparatus is so good as a normal knee.

PERFORATING WOUNDS OF THE UTERUS.

HEINECK (*Chicago Medical Record,* October, 1908) after noting that perforations of the uterus can and do occur with the most startling ease, and that probably no gynecologist in the world of large experience has not met with this accident several times in his work, observes that by careful search of the literature he has been able to collect 160 cases of uterine perforation occurring in the course of intrauterine instrumentation. Any instrument that can be used or misused in the uterus is capable of perforating the uterine wall. This accident has happened from the use of a uterine douche, tube, irrigator, and catheter. In 154 cases tabulated there were 42 deaths and 108 recoveries, the result not being stated in four cases. Expectant treatment was pursued in 66 cases. There were 21 deaths in this series. Laparotomy, includ-

ing what intra-abdominal repair work appeared necessary to the operator, was performed 72 times. There were 52 recoveries, 17 deaths, and three unstated results in this series. Vaginal hysterectomy was done 15 times. There resulted 10 recoveries, four deaths, and one result not stated.

Heineck aptly remarks that dilatation of the cervical canal and instrumental curettage of the uterine cavity are not, owing to their associated dangers, office operations. In their performance the employment of a general anesthesia is highly desirable, nor should curettage be performed without ample cervical dilatation. Intrauterine instrumental interference should not be attempted by those who are not thoroughly conversant with modern asepsis and antisepsis and capable of recognizing malpositions of the uterus, as well as pathological conditions of that and of neighboring organs. The perforated uterus should never be swabbed or mopped with caustics or irritating antiseptics, nor should it be subjected to vaginal hysterectomy. If the wound has been inflicted upon a non-septic uterus during the course of an aseptic intrauterine maneuver, in the absence of complicating abdominal lesions, recovery is the rule. In all cases in which there has been a prolapse of the omentum or of the intestines into the uterine cavity laparotomy is urgent. The uterine wound, if large or bleeding, should be sutured. A healed perforation of the uterus apparently does not interfere with the normal development and normal termination of pregnancy.

THE OPERATIVE TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR IN ADULTS.

FLINT (*Annals of Surgery,* November, 1908) believes that operative treatment is indicated when conservative treatment has resulted in non-union and when the break is of such a character as to render this result highly probable. Non-union without marked functional disability is not an indication for operation. Since the line of fracture must be definitely known a good *x*-ray picture is essential. In an older person no impacted fracture is immediately operable. Such injury demands operation only when the patient is relatively young and when at the same time the impaction is such as to diminish the use of the leg either as the result of pain or as the result of deformity. If the neck is driven into the head in such a manner as to result in displacement of the head fragment, usually downward and backward, and should manipulation fail to separate the fragments for the purpose of reapproximation, an open operation may eventually be indicated.

A simple osteotomy, or a wedge-shaped osteotomy, may allow correction of the deformity. But this should not be undertaken within a year after injury—*i.e.*, at the time when it is obvious that a useful limb cannot be obtained. If the neck is driven into the trochanteric region no operation will be immediately necessary. When at the time of injury the adduction, rotation outward, and upward displacement are sufficient to produce deformity which would subsequently endanger function, then the impaction can be broken up and the fragments readjusted by abduction. In old injuries where the neck is driven into the head, the operative indications are the same as in recent cases, but when the neck is driven into the trochanter in such a manner as to produce great functional interference, a wedge-shaped osteotomy will be necessary.

In old people no impacted fracture, however bad the condition, demands operative interference. Non-impacted fractures in healthy robust adults in middle life or younger are immediately operable, except when the head fragment is completely turned around in the acetabulum so that the cartilage surface is in contact with the fracture surface of the shaft fragment. When the break is close to the head, if the person be young and strong, the thigh should be fixed in abduction by means of plaster. After two and a half months, if there is no attempt at union, an open operation is indicated. The data which show that there is absence of any attempt at union are ability to push the trochanter upward and rotation

of the trochanter in an arc smaller than on the other side. In doubtful cases two radiographs can be taken, one of the leg lying at ease, another with pressure upward of the leg. When the break is close to the cartilage and there is no attempt at union, the head should be excised, unless at the time of operation the cause for non-union is found to be interposition of soft tissue. If the patient is aged, but still in good health, the head fragments should be excised within a few days after injury. When the break is in the middle of the neck and the patient is robust, there is a chance that non-operative care will result in union. If at the end of two and a half months there is no union, an open operation is indicated. This consists in fastening the two fragments together by means of a bone peg. It has been demonstrated that ossification of connective tissue union is not liable to occur much inside of one year, hence weight must not be borne upon the thigh inside of this period. The early months may be passed in plaster, the latter ones in a metal hip splint. Some cases which would have ossified eventually do not do so because the patients are allowed to walk and bear weight too soon. It is apparent then that a robust individual with a break directly in the middle of the neck is obliged to sacrifice one year for a chance of saving the head fragment. Therefore the operation of pegging should not be recommended unless the conditions are such as to render it highly probable that the outcome will be favorable. If the neck be greatly crushed or the break very irregular no approximation favorable to subsequent union is possible. In such an instance the head fragment should be excised immediately.

In an aged person with a break in the middle portion of the neck, no open operation for the purpose of approximation and fixation is ever indicated. If the injury be old when first seen, the only treatment in cases of non-union is to excise the head whether the patient be aged or young.

The exposure which seems most desirable is obtained in the following manner:

The skin incision, carried to the fascia, extends from about 1½ inches behind the anterior superior spine of the ilium downward and backward to the posterior margin of the trochanter, and then vertically down the thigh about five inches. The skin behind with its fat is now separated from the fascia overlying the tensor vaginæ femoris, leaving the anterior skin-flap in place. The fascia is divided along the posterior margin of the tensor vaginæ femoris from the crest of the ilium down to the tendon, and the tendon itself is divided from behind obliquely downward and forward. This skin fat and muscle flap is turned forward, exposing a triangle bounded above by the fused margins of the gluteus medius and minimus, internally by the rectus femoris, and inferiorly by the vastus externus. This triangle is filled with a fat-pad and is traversed in the lower part by branches of the external circumflex vessels. The fat-pad is excised, exposing the anterior margin of the trochanter major, the capsule of the hip-joint, and the antero-external brim of the acetabulum. The inner boundary of the floor is the external margin of the ilio-femoral ligament. The digital fossa is exposed above, and along the margin of the acetabulum the reflected head of the rectus femoris.

By rotating the thigh slightly outward the exact seat of the break can be felt. The capsule is divided by an incision starting at the brim of the acetabulum close to the thick fibers of the "Y" ligament, and carried downward close to this ligament until opposite the place where the external part of the capsule becomes attached to the neck; the incision is then carried upward, dividing the capsule on the neck close to the bone. Retraction of this flap exposes the fracture. If the break is partly inside and partly outside the capsule, that portion of the capsule attached to the head fragment should not be cut. Room is obtained by dividing the portion attached to the shaft fragment anteriorly and below. The condition of the circulation of the head fragment is carefully observed, whether there are ischemic areas or not, whether the bone oozes after slight curetting, or whether there are cysts or not.

If it be decided to excise the head frag-

ment, the cotyloid cartilage is removed with a large sharp spoon. A transverse osteotomy is then done at the base of the trochanter from the digital fossa side. This enables the trochanter to be tipped outward when the neck is placed in the acetabulum. The osteotomy should be slightly oblique and outward, so that the trochanter may fit in the angle between the shaft and the pelvis. The anterior inferior margin of the acetabulum should be cut away, for the reason that if this projecting lip is left the shaft of the femur will be rotated outward after being placed in the cavity. The periosteum over the brim of the acetabulum, the outer side of the shaft of the femur and the inner side of the trochanter should be stripped up so as to permit of bony approximations.

After the shaft has been placed in the acetabulum the trochanter is fastened to the pelvis by means of a stout bone peg, and this fixation is reënforced by suturing the periosteum of pelvis and trochanter with chromic gut.

In recent cases these steps are exceedingly easy, whereas in older cases great difficulties are met because of the changes in muscles and ligaments. In an old case it may be necessary after removal of the head to abduct the leg to about 90 degrees, engage the top of the femur in the cavity, and gradually force the leg down. At times it may be necessary to resect the upper portion of the trochanter. If there is much tendency for the femur to leave the acetabulum, it is best to fix the femur to the pelvis by means of a bone peg of 25 F. caliber. The position of the femur should be about 30 degrees abduction with the patella pointing straight upward.

After closing the wound the leg is put up in plaster, an assistant having held it in position.

When on operation conditions are found to be present which justify an attempt to preserve the head fragment, the fracture surfaces are freshened with a curette, after which the head fragment is adjusted with the leg in correct position, which is preferably abduction with the patella facing straight upward. The neck is bored through the trochanter in the direction of the break, this being inward, slightly upward, and slightly forward, according to the position of the neck, but the forward angle must be estimated. The distance in the adult man is about 4 inches, and in a woman about 3½ inches.

The best bone peg is made of the shinbone of an ox turned on a lathe or sawn out and filed practically round. The peg can be boiled on two consecutive days for about half an hour. It is absorbed in about ten months to one year. The first dressing after operation, whether the head of the bone has been resected or not, should be a solid plaster cast extending from the toes to the nipple line with the leg in an abducted position. This position is always possible in resection cases, but may not be in cases in which a pegging operation has been performed.

The plaster should be so arranged that during the first week traction can be used. At the end of eight weeks the patient is allowed to use a crutch, the Thomas hip-splint being employed. This should be kept on for one year.

In excision cases, at least six months should be allowed to pass from the time of operation before the patient bears weight on the leg.

When the head has been excised, the result aimed at is to have the shaft remnant of the neck or the upper end of the femur remain ankylosed by bony union in the acetabulum.

ACUTE HEMATOGENOUS INFECTION OF ONE KIDNEY IN PERSONS APPARENTLY WELL.

Cobb (*Annals of Surgery,* November, 1908), believing it is as yet little understood by the profession that persons apparently in good health may suffer from septic infarcts of the kidney and present a typical picture of certain grave abdominal emergencies, such as appendicitis, cholecystitis, or visceral perforation, reports eight cases of this affection from the surgical wards of the Massachusetts General Hospital, all of them

operated upon since 1902. The right kidney is said to be more frequently involved than the left. The symptoms may exactly suggest an acute appendicitis or an acute cholecystitis. Women are more susceptible than men, especially women who have borne children. In persons apparently well the onset is usually acute and without warning. The course of the disease may be rapid, with increasing toxic symptoms, and after acute onset the patient may go for weeks or months in a septic condition. In a small number of cases infection may manifest itself by slight pain in the back and a long-continued fever with or without pyuria.

In the acute fulminating cases there may be nothing pointing to the kidney except tenderness in the costovertebral angle; this is a constant sign. These acute cases present an exact picture of an acute abdominal infection—sudden abdominal pain, tenderness, muscular spasm, vomiting, high temperature, pulse, and leucocyte count. In such cases, unless blood and blood casts, with or without pus, are found in the urine, or an enlarged and tender kidney can be palpated, a positive diagnosis cannot be made. In the presence of septic conditions elsewhere, or in general infectious diseases, such an acute picture should always lead to a consideration of acute infection of the kidney. Fortunately the majority of the cases furnish some positive evidence either in the urine examination or by palpation of the kidney. In the less acutely sick cases the condition of both kidneys should be studied by ureteral catheterization and *x*-ray. In all but two of the cases reported there was some sign which pointed directly to the kidney, and time could be taken for cystoscopy and *x*-ray. In certain of the cases the pain may be referred entirely to the region of the appendix or gall-bladder. In one case reported by the writer the symptoms and signs were exactly those of duodenal or gastric perforation; in another case those of appendicitis. The examination of the abdomen may give all degrees of tenderness and muscle spasm. Leucocytosis is always high in the acute cases, 18,000 to 36,000. The differential diagnosis in the acute cases, unless the kidney is enlarged or tender or the urine shows blood and blood casts and pus, will always be difficult if not impossible. It is the writer's opinion that in acute cases in which positive evidence of the kidney cannot be obtained, it is better to make a preliminary anterior incision to settle the diagnosis and the existence of the other kidney as quickly as possible. Delay even long enough for ureteral catheterization may be dangerous.

The presence of albumin, pus, and blood in the urine, associated with tenderness in the costovertebral angle and a high white blood count, should point to the kidney as the cause of the acute symptoms in persons previously in apparent good health. There should be little difficulty in diagnosis if in addition to the signs and symptoms just mentioned an enlarged and tender kidney can be felt. In the exceptional fulminating cases, where nothing is found by palpation or in the urine, especially when the right kidney is infected, a positive differential diagnosis cannot be made without operation.

TREATMENT OF GENERAL PARALYSIS AND TABES DORSALIS.

W. Ford Robertson (*Lancet*, Nov. 14, 1908) shortly summarizes his study of these topics as follows:

We have found that bacilli of the diphtheroid group, possessing prominent metachromatic granules, can be shown to be invading the tissues in all cases of advancing general paralysis and tabes dorsalis. The chief seats of invasion or of the infective foci are the nasopharyngeal and oral mucosæ in cases of general paralysis, and the genito-urinary tract in cases of tabes. Evidence of such invasion has been obtained by the direct examination of scrapings from the surface of these mucous membranes. Confirmatory results have been yielded by bacteriological examination. Further evidence in support of the occurrence of such invasion has been obtained from the examination of the cerebrospinal fluid removed by lumbar puncture. In the centrifuge deposit from this fluid bacilli have been demonstrated in several instances,

and in two cases the deposit has yielded a pure culture of a similar bacillus. Growths of diphtheroid bacilli have now been obtained from the brain post mortem in numerous cases of general paralysis, and these microörganisms have also been demonstrated in microscopical sections of the brain. It has been ascertained that two species of the diphtheroid bacilli isolated from cases of general paralysis or of tabes dorsalis are often virulent to mice and rats, whilst being innocuous to guinea-pigs.

In the course of the investigations carried out more recently several new facts have been elucidated and much evidence has been obtained confirmatory of contentions already advanced.

It has been found that many strains of the bacillus paralyticans longus, when provided with ordinary aerobic cultural conditions, will not grow at all, or will grow only very feebly for two or three days and then die out. If, however, semianaerobic conditions are provided, by heating the upper end of the culture tube and dipping the cotton-wool plug in melted hard paraffin before it is inserted, the bacilli will grow in minute but distinct colonies. That this bacillus is not essentially different from the vigorously growing types is evidenced by the facts that it has the same biochemical reactions, that in many instances it has a distinct degree of virulence to mice, and that in respect to the characters of growth there is a gradual series, extending from feeble to vigorous strains. In the large majority of instances the bacillus paralyticans longus is of the feebly growing type and requires the provision of semianaerobic conditions for its successful cultivation.

With regard to the treatment of general paralysis, he has lately clearly established the fact that there is a great advantage in combining active immunization by means of injections of killed cultures with the passive immunization obtained from the administration of the special antiserum. The two methods are in no way incompatible, and it may be suggested here that a similar association of active and passive immunization (already found to be of service in immunization against anthrax) might prove of value in several other bacterial infections. It would appear from results that we have obtained that the morbid process in general paralysis and tabes dorsalis can be arrested by these methods of treatment if it is not complicated by severe secondary infections. In the cases in which the treatment has not been successful there has always been abundant evidence of such secondary infections.

The writer has endeavored to combat the nasopharyngeal and oral infections by local measures. In view of the evidence of the destructive action of oxygen upon certain strains of the special bacilli, it occurred to the writer that Merck's perhydrol would be worthy of trial in the form of a nasal spray. He has used this extensively in a one-per-cent solution, both as a nasal spray and as a mouth-wash (applied daily or every other day), and there can be little doubt that distinct benefit has resulted in many cases. It is perhaps not out of place to mention here that the daily spraying of the nasal mucosa with one-per-cent perhydrol proved a remedy of striking efficacy in three cases of hay-fever. In this malady its action is probably in part mechanical, for it is not unreasonable to suppose that the minute bubbles of oxygen which form at the surface of the mucosa serve to remove the pollen and particles of dust which, lodging there, set up such intense local irritation.

Another fact regarding the pathology of general paralysis that our more recent observations have clearly established is that secondary bacterial infections are extremely prone to occur in the infective foci. The microörganisms concerned appear to be especially streptococci, staphylococci, and certain species of diplococci. Evidence of mixed infection may be seen in the condition of the gums in most cases of general paralysis. Pyorrhea alveolaris, which, of course, is not by any means confined to persons suffering from general paralysis, is almost constant in well-established cases. Bacteriological examination of the contents of the spaces between the teeth and the

gums and histological examination of the inflamed tissues show that numerous forms of microörganisms, including diphtheroid bacilli, are actively invading. There is evidence that a similar multiple invasion occurs in many cases from the nasopharyngeal mucosa. In advanced cases it extends much more widely throughout the respiratory and alimentary tracts.

THE HEATH MASTOID OPERATION.

McKINNEY (*Memphis Medical Monthly*, November, 1908) writes with considerable enthusiasm upon the immediate and ultimate results of the Heath mastoid operation, contrasting the simplicity and safety of this procedure with the dangers and complications incident to the Stacke-Schwartze method, according particular attention to the possibility of injuring the facial nerve in this latter procedure, even when it is conducted by the most skilled. Moreover, the radical operation is attended with destruction or at least reduction of whatever hearing may have been left. Nor does it give complete assurance of recovery. There is an after-treatment which involves weeks and months of attention and perhaps the necessity of skin-grafting in order to induce the epidermization of the cavity remaining.

The Heath operation promises good results as far as the cure of the discharge is concerned, and better results in regard to the hearing, and is attended with practically no danger of injuring the facial nerve. Heath argues that since the antrum is the fountainhead of the pus discharge, elimination of the antrum as a pus-containing and producing cavity, with subsequent good drainage, is all that is necessary to cure the ear. Entering the antrum Heath contents himself with a very small bone opening, the drum being left, together with whatever ossicles may have remained undestroyed. The contents of the tympanum are not touched surgically. He states that the Eustachian tube should be rendered patent and kept so; indeed, the cases quickest recovered are those in which Eustachian patency is best preserved. Following Heath's operation there is complete healing of the perforation in the tympanic membrane. Moreover, it is stated that many of these cases, deaf before operation, may become sensitive to the whispered voice. As to the post-operative course of these cases, usually they are reading the newspaper the next morning, and in a week or ten days they are up and going about. Skin-grafting is never necessary, and the after-treatment is exceedingly simple, consisting practically of nothing other than the instillation of a few drops of alcohol every day or two, with cleansing and reintroduction of the rubber drainage-tube. The proper performance of the operation requires a careful preliminary dissection of the integument, and the periosteal and meatal flaps must be very accurately made to secure the best results. The incision begins high up just back of the temporal artery, and is carried as far down only as the floor of the external auditory canal.

If cholesteatomata are present the operation is rendered radical. This seems necessary in these cases. The procedure is used for acute cases as well as chronic, though it seems better adapted for the latter.

THE OPERATIVE TREATMENT OF OPTIC NEURITIS.

HORSLEY (*Birmingham Medical Review*; quoted from *Ophthalmoscope*, September, 1908) insists that the prime factor in the development of optic neuritis is a rise of the intracranial pressure, and that the actual effect of toxins on the nerve is not yet known. Even in uremic conditions the brain is found swollen, turgid, and engorged. That relief of such intracranial tension arrests and cures optic neuritis has been repeatedly shown since Horsley proved it twenty years ago.

In this present communication he draws attention to some important points in the method of operating, and discusses the question of diagnosis.

Notwithstanding the fact that the neuritis often subsides considerably after the simple opening of the skull, the relief is not

permanent, and consequently the dura mater should invariably be opened. The opening in the dura should be free—5 centimeters or so—as a small opening is liable to be plugged by the cerebral substance under pressure from within.

Attempts to relieve intraventricular pressure by direct tapping of the ventricles or by lumbar puncture have been unsatisfactory, though some temporary subsidence of neuritis and relief of headache have been obtained by these means. It is, therefore, generally conceded that it is better to make a considerable opening in the skull and dura mater. This can best be done in the region of the arachnoid cisterna. The interpeduncular cisterna is approached by making a large oval opening in the temporal region (practically the removal of the squamous bone), free incision of the dura mater, and the pushing back and slightly raising the temporal lobe of the brain. This operation may be spoken of as the operation of selection, as it gives the most certain relief. The cisterna beneath the cerebellum can be reached by trephining the occipital bone and prolonging the aperture into the foramen magnum. "On opening the dura, it is readily seen that the arachnoid in this region is attached high up on the cerebellum, and the cisterna can be opened at once without difficulty." Subcerebellar release of pressure is probably as effectual as the operation above the tentorium, as long as there is no obstruction around the midbrain, where it perforates the tentorium, or in the aqueduct itself, but in all cases where it is impossible to locate the disease and attack it directly, the temporal route is always preferable. After an operation for cerebral tumor, the swelling and degenerative changes of the disk and retina clear up with remarkable rapidity, and this whether the operation is performed above or below the tentorium.

In the matter of diagnosis, Horsley finds that the early failure of visual acuity indicates beyond doubt the situation of the tumor. It has been shown that the inner half of the optic disk is the first to become involved in the neuritic process, and it therefore follows that if secondary degenerative changes can be found in that part of the disk on one side, it indicates that the neuritis began on that side, and consequently that the cerebral disease is also on that side. But it must be clearly understood that it is the age of the neuritis and not the amount of swelling of the disk that forms the guide to the site of the lesion. The gradations of neuritic process according to its age may be designated "juicy," "striation," "stippling," "dotting," "formation of white spots," and, lastly, "shrinkage or atrophy."

Even in specific uniocular neuritis, which medicinal treatment is expected to cure, early operation should be resorted to in order to prevent the development of permanent atrophy changes in the nerve.

It must be remembered that although nothing can be done for advanced atrophy with bare perception of light, there are various other grades of atrophic changes which clear up with good visual results, if the source of the neuritis be removed. This is strikingly shown in the case of chronic optic neuritis met with in slow-growing cerebellar tumors. This chronic neuritis must be distinguished from the subsiding atrophy of a previously highly swollen disk, associated with a rapidly growing sarcoma of the cerebral hemisphere.

Horsley sums up the position as follows:

1. All cases of optic neuritis should be relieved as soon as possible by operative treatment.

2. Such operative treatment, in the absence of other indications, should be opening of the subdural space in the temporal or subtentorial region.

3. The physician or surgeon in charge of a case must be held responsible for consequent blindness, if the neuritis be not treated as soon as detected.

Chaillous, who has successfully employed lumbar puncture as a means of decompression in some cases of intracranial disease with optic neuritis, finds that this procedure can only be of palliative or diagnostic value in cases of cerebral tumor. He considers that the following routine treatment should

be adopted in all cases: A thorough course of antisyphilitic treatment and cytological and bacteriological examination of the cerebrospinal fluid obtained by lumbar puncture. If symptoms persist and if the optic neuritis does not subside, the skull and dura mater should be opened in two stages.

Frenkel advocates lumbar puncture in the treatment of serous meningitis, but observes that it can only be palliative in cerebral tumor and tuberculous meningitis. In cerebral tumor the treatment has to be employed with prudence and caution, as it may be followed by recrudescence of the nervous symptoms and even sudden death. In hydrocephalus the results are very variable, and success can only be expected when the treatment is employed before optic atrophy has supervened, and the punctures are frequently repeated with liberal evacuation of the cerebrospinal fluid. In serous meningitis some striking successes have followed the withdrawal of cerebrospinal fluid by lumbar puncture. The diagnosis of serous meningitis is not easy as the symptoms are often vague. The classical symptoms—headache, vomiting, and constipation—are present but are not very severe. Feverishness, rapid pulse, mental, motor, and sensory disturbances are less marked, while remissions are more frequent and of longer duration than in septic meningitis. The diagnosis must be confirmed by finding optic neuritis (Quincke) and increase in the quantity of cerebrospinal fluid, the evacuation of some of which quickly leads to alleviation of the symptoms (Shultze). It is a disease which may be due to otitis media, infectious diseases such as measles, typhoid fever, influenza, acute rheumatism, and suppurative endocarditis. Even cold and traumatism have been ascribed as causes. Serous meningitis is distinguished from cerebral tumor by the absence of localizing symptoms and the result of treatment. Calmette's ophthalmo-reaction may be used to disprove tuberculous meningitis, and syphilitic meningitis, though difficult to exclude, would be suggested by the history and a cytological examination of the cerebrospinal fluid.

SUBCONJUNCTIVAL INJECTIONS OF FLUIDS AND OF STERILIZED AIR.

Many clinical observers have experienced excellent results from the subconjunctival injections of various substances—normal saline, stronger solutions of chloride of sodium, sugar, cyanide of mercury, etc. Some have maintained that it matters very little indeed what substance is injected, and that the effect is due not to the substance itself but to the irritant action produced by the foreign fluid upon the tissues, that it does not obtain entrance to the eye at all. After subconjunctival injection of saline, for example, the aqueous is found to be more albuminous and richer in agglutinins and precipitins, which are normally present in minute quantities. Wessely showed this, and, further, that the difference depended almost altogether upon the enlargement of the lumen of the neighboring vessels; the same effect can thus be produced by mechanical or electrical irritation, apart from any injection at all. Best has continued these investigations with the view largely of discovering the effects upon the cells themselves. Glycogen is practically absent from the normal eye of the rabbit, but is found in great abundance in the retina after subconjunctival injection. The other parts of the eye are not thus affected. Even in the retina glycogen is not equally distributed, but is chiefly to be found in the nerve fiber layer, in the ganglion and inner molecular layers, and in the space between the hexagonal pigment cells and the rods and cones. It is probable that its presence in these parts is due to local cell activity, for it is not found in the vessels of either retina or choroid; possibly the seat of active formation is the glia cells in the layers mentioned. It is also worthy of attention that exactly the same results follow injection of numerous different substances, and even such a procedure as cauterization of the conjunctiva; it appears, that is, to be a result of irritation of tissues, the actual nature of the irritant not being of great importance.

Koster was among the first, if not actually the first, to inject sterilized air into the

anterior chamber, and he found benefit from the procedure in cases of tuberculosis of iris and cornea, both suppurative and non-suppurative. The two Tersons employed subconjunctival injection of air, and found the method harmless and not painful. It appeared to great advantage in the treatment of photophobia, where it had almost a specific action, and was useful also in cases of sclerotizing keratitis and of marginal keratitis. In hypopyon ulcer, too, good has seemed to result from its use. The analgesic action is very marked. Frenkel is uncertain whether to attribute this to compression of the nerves or to a direct action of the oxygen in the air upon the nerve fibers. Air injections do not seem to have any value in diseases of the posterior portions of the eye.—*Annales d'Oculistique*, March, 1908; *Edinburgh Medical Journal*, November, 1908.

TREATMENT OF SCABIES.

BURKE (*American Journal of Dermatology*, November, 1908) thus describes the Parisian method of "cure while you wait." An attendant vigorously scrubs the body of the patient with green soap, using a stiff hand brush, after which the patient is put in a tub of hot water for a half-hour, during which time the rubbing is continued. The patient is then dried and the body smeared with a salve composed of flowers of sulphur, potassium carbonate, and lard q. s.

While the patient is being scrubbed and bathed his clothes have been placed in an oven and baked, and after he is smeared with the sulphur ointment he is allowed to dress and told to leave the salve on for twenty-four hours. He is also instructed to change the bedclothing, and if he has a bed-fellow, he is told to send his sleeping mate around to take the cure.

The objects obtained by this method are a maceration and softening of the skin by the green soap and the mechanical opening of the burrows by the stiff brush, which give the sulphur easy access to the female acari.

This no doubt seems a rather severe treatment, but it is very efficacious, and during the writer's stay in Paris he saw thousands of cases handled by it, and failed to see any that were in any way injured by the method.

At University College, London, they use sulphur baths. The patient is soaked for fifteen minutes in a solution of 4 ounces of sulphide of potassium to 30 gallons of water, and is then scrubbed with a stiff brush and again placed in the bath for fifteen minutes, after which he is allowed to dress, his clothes having been baked in the meantime. One or two such baths are enough, but as a rule three are ordered.

In the Vienna clinics the patients with "scabies" are turned over to the "diener," who orders them to strip and then gives them a jar of Hebra's modification of Wilkinson's ointment, composed of sulphur flowers, 15 per cent; oil of rusci, 15 per cent; green soap, 30 per cent; prepared chalk, 10 per cent; lard, 30 per cent. The "diener" sees that this is rubbed all over the body from the neck down. They are then allowed to dress and are instructed not to bathe, and to rub the ointment on once a day until the skin begins to desquamate, which takes four or five days. They are then allowed to bathe, and when the skin has all desquamated, which will be four or five days longer, they are cured.

Sherwell, of Brooklyn, instituted a method of treatment that commends itself for its simplicity. He advised rubbing powdered washed sulphur into the existing lesions, and also sprinkling some of the sulphur between the sheets of the bed. This is to be done every second day. This treatment requires about two weeks' time to effect a cure.

In all of the above methods sulphur is used either alone or in combination with other drugs. While sulphur has proven to be an efficient agent in scabies it has its objections, chief of which is its tendency to cause a dermatitis. Or if the patient has a tendency to eczema, it may produce an eczema more distressing than the scabies. It is not safe to prescribe a sulphur prepa-

ration for longer use than three days, and then if the patient returns complaining of itching, it is well to suspect that this may be due to a dermatitis produced by the sulphur rather than to an uncured scabies.

These objections to the use of sulphur have caused numerous other drugs to be tried, but they have all been found wanting except balsam of Peru.

It is stated that it used to be the custom in the Italian army to varnish a scabies patient with balsam of Peru and let him return to the ranks, but that the method was discontinued on account of the expense. It is also claimed that this method is in use in the Berlin Military Hospital and gives good results.

Porter, as the result of extensive observations in the military garrison at Colchester, England, noted that cases treated by sulphur averaged fifteen days' absence from duty, whilst those treated with balsam of Peru returned to duty in three days. His method of treatment is to give the patient a hot bath and then varnish the body with a mixture of 3 ounces of balsam of Peru and 1 ounce of glycerin, this quantity being enough to completely varnish a well-grown adult. There is no danger of interference with perspiration as the balsam is soluble in water. The patient is allowed to bathe after twenty-four hours, this time being sufficient to accomplish a cure. The urine of patients was examined for albumin, without any being found, nor were there any deleterious effects from the treatment, while all were relieved of the itching after the first application. Moreover, the figures seem to show that balsam of Peru is a better preventive than sulphur.

Burke states that he has used this method in his dispensary service, instructing the patients after a hot bath to rub the balsam of Peru and glycerin mixture all over the body from the neck down, and to leave it on for three days, making a new application each day. The fourth day he had them take a bath and change their underwear and report at the clinic. They almost invariably state that the first application relieved the itching and allowed them to sleep. On the second visit they were given an indifferent salve and told to return if they were not better when that had been used up. They seldom returned.

The efficacy of the remedy as a preventive is emphasized by one case, that of a nurse who had charge of eight-months-old twins. As the nurse had the itch it was suggested that she leave her charges until she recovered. Permission to do so was not granted her by the mother of the children. The nurse was varnished with balsam of Peru and told to wear gloves. This promptly cured her, nor did the children develop the disease. The particular virtues of the balsam are that it immediately relieves the itching and does not cause dermatitis or eczema.

THE TREATMENT OF VASCULAR NEVI BY RADIUM.

WICKHAM and DEGRAIS have published their observations up to date on this subject, to which for two years they have devoted particular attention (*Revue de Médecine de Paris,* June, July, 1908). They were struck, at the commencement of their experiments on radiotherapy in general, by the amount of blanching of tissue which ensued, and this led them to study in series the therapeutic effect of radium on vascular nevi. In all the ordinary forms of these, but chiefly in those of large dimensions, whether superficial or deep, flat or prominent, and pulsatile, they have obtained interesting results. Decoloration and flattening of the nevi *in toto* followed, not mere whitening of selected parts within the area of the malformation. It is now possible to lay down certain rules dealing with the mode of operating and the dosage, which have already proved useful to other experimenters.

Among the various actions which are included under the term radioactivity is its power of modification of the cells composing living tissues. It disunites their affinities; it can destroy them, or simply influence them in their evolution. Radium emits in process of dematerialization a gas and rays; the latter alone can be utilized in the

treatment of vascular nevi. The rays are threefold in character—*a*, *b*, and *y*. The first two are particles which issue from the disaggregation of the atoms which compose radium. By reason of their rapidity and tenuity they can insinuate themselves into the interatomic spaces of substances and pass through. The *y*-rays constitute a form of perturbation of ether; they consist of extremely short waves, are propagated with extraordinary swiftness, and, as ether is everywhere, are readily transmitted through the body. By means of a screen of lead or aluminum we can filter off the *a*-rays, likewise the *b*-rays, leaving the *y* alone, and this enables one to act more or less strongly in different conditions of the tissues.

In determining the strength of radium, uranium is taken as the unit. The maximum activity of a pure salt of radium is 2,000,000. The salt of radium in use is a sulphate of barium-radium, and the proportion of the former determines the degree of activity. Thus when we speak of a salt of radium of an activity of 500,000, this means that it has a power of irradiation 500,000 times greater than an equal quantity of pure uranium, and it is a salt of this energy that Wickham and Degrais almost always employ. Thus an application is more or less powerful according to the radioactivity of the incorporated salt. As regards usefulness in therapeutic utilizations, this depends on other conditions, viz.: (1) The quantity of the incorporated salt. (2) The perfection with which it is spread out. (3) The definite fixity of the particles. (4) The dimensions of the radioactive surface of the apparatus. In general an apparatus of large surface armed with a salt of feeble radioactivity is, on the whole, much more energetic than a small apparatus of strong activity. (5) The degree of permeability to the rays themselves of the substance used to fix the salt. This is very important, as, in proportion to its nature and thickness, it will permit a greater or less amount of irradiation. It is evident that the closely compacted particles of radium enclosed in the glass tube or platinum buttons are not compatible with the treatment of vascular nevi in the ordinary sense. The apparatus employed, therefore, consists of a metallic surface coated with a varnish designed by M. Danne, usually containing one centigramme of the salt in each square centimeter of area. This is hard, smooth, easily cleaned, and varies in form so as to be adaptable to different situations. The largest is six centimeters in diameter, and can cover nearly a whole cheek.

More recently appliances made of cloth impregnated with a glue which absorbs fewer of the rays than the varnish have been used for some nevi, and these are found to be richer in *a*-rays. They have a pliancy which admits of their being molded to irregular surfaces, but they are not so durable, and it is sometimes necessary to separate them from the tissues by a thin film of aluminum. This is an adaptation of a plan introduced some years ago by Dr. Norman Walker for the treatment of lupus. He had plasters compounded containing the oxide of uranium, and produced with them an appreciable effect notwithstanding the feeble radioactivity of the salt. The flat nevi level with the skin are the commonest, but their very shallowness calls for care in regulating the dose, which in most cases is small. In a general way exposures vary from one to two hours, distributed over two or three sittings. Reaction appears on the tenth to the fourteenth day, and thirty to fifty days later the part is bleached, and in color, wrinkling, and flexibility approximates the normal. For exact details of the treatment and duration of exposure in individual instances reference must be made to the article itself, since these cannot be easily summarized. He concludes by saying that as regards the vascular tumors—the prominent forms, nay, even certain monstrosities—the results are admirable. As for the flat capillary nevi one must speak with greater reserve, at any rate with respect to the very pale kinds, since such can be readily concealed by the application of powders or other devices. In the more highly colored we must seek to obtain the minimum of inflammatory reaction by giving exposures extended over a prolonged

period, and by the use of suitable modes of filtration. Discoloration can thus be attained with little perceptible irritation. The final condition reached is seldom a complete return to the normal, but is scarcely a cicatrix, rather a special tissue which may be designated a tissue of restitution—still a remarkably good substitute. The painlessness of the method constitutes one of its chief recommendations.

The paper is illustrated by three plates in color, showing the state before and after treatment, and if these are expressions of average results the method has a wide future.—*Edinburgh Medical Journal,* November, 1908.

OPERATIVE TREATMENT OF EMBOLISM OF THE PULMONARY ARTERY.

TRENDELENBURG (*Archiv für klinische Chirurgie,* Bd. 86, Heft 3) directs attention to the fact that embolism in the greater circulation occurs usually as a result of heart disease or other debilitated condition, and that surgical intervention is called for only on account of gangrene; also that repeated attacks are apt to occur. On the other hand, embolism of the lesser circulation frequently occurs in robust persons who have suffered a fracture or have undergone an abdominal operation. Two conditions are necessary for successful operative treatment, namely, a correct diagnosis and time for operation. Although there is a variety of phenomena, the general picture of the affection is so characteristic that there can be little doubt as to the diagnosis. The attack is ushered in by severe collapse, not seldom accompanied by pain in the heart region which causes a loud outcry; the face assumes an ashen color; the lips are pale and slightly cyanotic, although the paleness predominates; the jugular veins and some of the subcutaneous veins in the upper part of the chest are abnormally distended; cold sweat covers the forehead; the face has an anxious expression; the extremities are pale and cool; the pulse is small and irregular, often ceasing for a considerable period; respiration is frequent and forcible; the pupils are wide and staring; there is temporary or lasting unconsciousness; and finally, after several spasmodic respiratory movements, comes death. Auscultation reveals various murmurs, but is usually of no help in diagnosis, which can, however, be readily made without it. Knowledge of the fact that pulmonary embolism, as a rule, follows an abdominal operation, fracture of the lower extremity, operation involving large veins, or in varicose veins of the leg, is of great aid in diagnosis. It also occurs in most cases at the time of defecation or on first arising from bed after having been for a considerable time in the recumbent position. The embolus may lodge in the main trunk or in any of the branches of the pulmonary artery, sometimes extending into them from the right ventricle of the heart.

In nine cases which Trendelenburg has observed two died very suddenly, and the others lived from ten to sixty minutes after being stricken. In one of Virchow's cases death was delayed for three hours. Therefore, if everything is kept in readiness, in some cases time will be allowed for operative procedure.

The operation consists in making a transverse incision at the level of the second rib, beginning at the left border of the sternum and extending outward 10 centimeters; at right angles to this another incision is made along the left border of the sternum from the manubrium to the cartilage of the third rib, or lower. The triangular flaps thus made, including the pectoralis major muscle, are turned back; the second rib is cut through with shears at the outer end of the incision and the fragment removed. Then the pleura is opened by an incision one inch from the sternal border and extending from the first to the third rib. The pericardium is then seen to the medial side. This is grasped with pincers in front of the phrenic nerve at the height of the third rib, not higher, and incised in an upward and backward direction so that the pulmonary artery is laid free. This part of the operation requires five minutes. A long bent probe with blunt end is then passed with a twisting motion from left to right behind the artery until the tip of the sound again appears at

the left border of the sternum. A thin rubber tube is fastened upon this end of the probe and the probe withdrawn so as to carry the tube behind the vessels. By pulling upon the tube downward and forward the vessels can be compressed to any desired degree and can be released in a moment.

Before completely compressing the vessels the pericardial covering of the pulmonary artery is grasped at its antero-external aspect with two dissecting forceps and stripped back so that the wall of the artery is plainly visible. Then the artery is compressed and a puncture about three-fourths centimeter long is made in it, and a polyp forceps introduced for the purpose of grasping and withdrawing any embolus which may have lodged in the main stem of the artery or one of its branches. This having been done the hole in the wall of the artery is quickly closed with forceps applied laterally and the pressure removed so as to reëstablish the blood stream. This step in the operation requires three-quarters of a minute, or even only half a minute. In spite of the need for haste this part of the operation must be done calmly and carefully, as the arterial wall is easily torn. The opening in the artery is closed with close-set, interrupted silk sutures. This is the most difficult part of the operation, as the heart acts at this time in a very stormy manner, and the artery can be kept still only for a moment at intervals by pulling upon the tube. The forceps dare not be pulled upon on account of the danger of tearing the artery. The incision in the pericardium and the external wound are then closed.

The author reports one case which was unsuccessful in its final outcome on account of faulty technique, in that a linen string was used instead of a smooth rubber tube, and was very hard to pull through behind the artery; as a result of this the artery was torn posteriorly and bled severely from that point. The patient was a woman of seventy years, who six days previously had suffered a fracture of the neck of the femur. Operation was begun eighteen minutes after the onset of the attack with the breathing frequent, deep, and forced, pulse impalpable, and heart sounds inaudible. A few whiffs of chloroform were given. The small arteries cut through did not spurt; the heart-beats were very weak. A clot about 4 centimeters long was removed from the pulmonary artery, but on account of the accident above referred to bleeding kept up and breathing soon stopped. A small or failing pulse should not be considered a contraindication to operation, for so long as breathing continues the patient may recover. The author has carried out a series of experiments upon guinea-pigs, sheep, and calves.

THE POSSIBILITY OF AVOIDING CONSPICUOUS SCAR FORMATION IN SOFTENED TUBERCULOSIS OF THE CERVICAL GLANDS.

WILLY MEYER (*Medical Record,* Nov. 21, 1908) notes that in the small number of cases in which he has been able to use the Bier congestion in the treatment of broken-down and suppurating glands of the neck the results have been most satisfactory. He has made his patients wear the elastic neck-band eleven out of every twelve hours for a longer or shorter period. The band, made of the same material as the black elastic rubber bandage, with a button in one end and a number of buttonholes in the other, is a very comfortable appliance. Compression of the deep jugular vein should not be sufficient to cause the patient annoyance; he must be able to talk, eat, drink, breathe, and sleep without discomfort—in fact, he must be hardly aware of the presence of the band. The appearance of fluctuation at the site of the trouble is carefully watched for. It may be hastened by the continuous application of a warm wet-gauze dressing. As soon as it appears a short cut is made in the course of the neckfold, through which the pus is evacuated. The wound is simply left open and the suction cups used daily for a period of four to five minutes—*i.e.*, six times for four or five minutes each, with an intermission of two or three minutes each time. If the treatment is properly carried out the mixed infection will not occur. Bier himself is satisfied with suction treatment alone, but Meyer is inclined to use the neckband in conjunction with it.

REVIEWS.

GENERAL PATHOLOGY. By Dr. Ernst Ziegler. Translated from the Eleventh Revised German Edition (Gustav Fischer, Jena, 1905). Edited and brought up to date by Aldred Scott Warthin, Ph.D., M.D. Illustrated in black and colors. New York: William Wood & Company, 1908.

This *postumus* and posthumous edition of Ziegler's General Pathology is in all probability also the last. The translation appears three years after the death of the author and nearly four years later than the last German edition. The preceding editions and the present one constitute the most enduring memorial of the author's life, but no doubt will shortly be forgotten by his successors. To many students in both the native and alien tongues (French, English, and Italian translations have appeared) Ziegler was the only authoritative work available. Its wealth of illustration and rich bibliography rendered it attractive and illuminating; its rather verbose and not infrequently obscure language in the original and in translation was overshadowed by intrinsic merits that gave it popular recognition and assured general adoption. Nevertheless both at home and abroad it has had its day, and unless unforeseen conditions revivify its pages the old familiar volume will no longer haunt the dreams of the student or be thumbed by the savant. To old friends this is a source of regret, to those acquainted with its good qualities it will be a loss. At home several works have outrun the popularity of Ziegler, and in at least two of the alien tongues more popular and on the whole more desirable publications are gradually displacing it. It were well perhaps for the author, whose untimely demise we all lament, that he did not live to see the most conspicuous product of his energy pass into desuetude.

In general the present edition follows closely the scheme of the preceding one. A few new illustrations have been added, and the bibliography, with a fair degree of completeness, has been brought up to the autumn of 1904; rarely later. The able editor, whose familiarity with the literature of pathology is unquestioned, has not availed himself of the opportunity to bring either text or references to date of publication. The references to literature in numerous instances have been carelessly proof-read; the Lazarus (page 157) referred to is neither German nor he of Bible record, the word representing a partial print of the name of the distinguished investigator and author of a representative English text-book on Pathology—Lazarus-Barlow of London. Among the eighty lines of references on B. diphtheriæ it would have seemed possible to have deleted some, nearly twenty years old, and afforded space for mention of the writings of Wesbrook, Wilson and McDaniel, Beebe, or Park. In the literature on "Tubercle Bacilli and Formation of Tubercles" Ernst's article of 1889 is given, but no mention of the same author's more recent work is made; a bibliography of the literature dealing with tubercle bacilli without reference to Theobald Smith is truly the play of Hamlet with the Dane omitted. Articles by Ravenel, Leonard Pearson, and Veranus Moore might have been mentioned. The author and editor are impartial in their treatment of American workers, the latter usually ignoring the splendid product of his own investigative energy. Why should he omit the admirable article by Warthin and Olney?

Respect for order—possibly for matter in plate—results in separation of subjects which recent work, if it means anything, certainly indicates should be arranged differently. The section on Syphilis (page 641) follows tuberculosis, and is under the heading "Pathogenic Fission Fungi," and one wanders through, among other things, the articles on Leprosy, Glanders, Rhinoscleroma, Actinomycosis, Cholera, Yeasts and Moulds, Aspergillus Mycoses, and Favus, to that on Relapsing Fever (page 693); two diseases associated with the spirochætæ are separated by more than

fifty pages of text in which quite different subjects are considered. The treatment of the pathology of infection is disjointed, and the resulting fragments are scattered through the book in a way to make one feel a highly reverential attitude toward, and grateful appreciation of, the admirable articles by Ritchie in Allbutt's System and also by Adami. These and many similar evidences of lack of proper rearrangement of text in order to adjust it to conditions, advanced or new, the inevitable accompaniments of extending invasion of the realm of knowledge, show only too clearly that new editions can rarely if ever be built on the electrotyped plates of books the antiquity of which may be a matter of months only, or at most but a few years. A professional vigilance committee able and willing to commit the standing matter of one edition to the melting pot as a preliminary requisite to the publication of a new issue—often incorrectly called a new edition—would perform a lasting service to medical literature and consequently to the profession in general and to the medical student in particular. This applies to all medical books. The author or editor who deletes just enough to admit a parsimonious intercallation of additional matter not infrequently murders accuracy of statement in both old and new.

Notwithstanding the failure to meet ideals this the eleventh edition of Ziegler's General Pathology contains much the loss of which would leave us poorer. It is as of old usually reliable in statement, well illustrated, and as a product of the manufacturers of books is far superior to many of the volumes poured forth from the medical publishers' press. W. M. L. C.

OBSTETRICS FOR NURSES. By Joseph B. DeLee, M.D. Third Revised Edition. Illustrated. Philadelphia: W. B. Saunders Company, 1908. Cloth, $2.50.

Although this book is intended primarily for nurses, as stated in the preface, it may easily serve as a guide to medical students, in regard to instructing them in a nurse's duties, which they often must assume themselves. Particularly good are the early chapters on the anatomy of the pelvis and pelvic organs and the physiology and care of normal pregnancy. In view of the many questions asked a nurse by her patient, the few paragraphs on the symptoms and diagnoses of pregnancy are entirely inadequate and not likely to prove a help to either nurse or medical student. One excellent feature is the set of illustrations depicting care of a normal labor with the patient lying on her side—a duty which the nurse must often assume. It is to be regretted that no mention is made, in speaking of the preparations for labor, of the sterilized obstetric packages put upon the market by several of the large surgical supply houses, which are reliable and a great saving of time and trouble. It is to be hoped that the cleansing process of the patient preparing for her labor, described on page 106, refers only to hospital ward patients, as such a procedure in the private patients would be met with pretty strenuous objections. Nor would such patients willingly tolerate the amount of exposure involved in positions illustrated in Figs. 50 and 56. The after-care of operations for complete tear, described on page 139, involves considerable strain on the sphincter and can hardly be recommended. No mention is made of mouth-to-mouth insufflation in reviving asphyxiated infants—a far more efficient method than the one described. Too much prominence is given to special incubators for premature infants, an apparatus out of the reach of nurses except in large cities, and too little prominence to the home-made but efficient makeshift of basket and hot-water bottles.

A most valuable feature is the appendix, comprising the outline of a nurse's duties, preparations, the patient's dietary, and most useful of all, a glossary. This last feature is one that should be incorporated in every book for nurses and adds greatly to the value.

The book as a whole is a useful one to a nurse engaged in, or contemplating, obstetric practice; valuable to a medical stu-

dent or physician as a guide to what nurses should be expected to do, and as an exposition of nursing technique. J. C. H.

GYNECOLOGICAL AND OBSTETRICAL NURSING. By E. P. Davis, M.D. Illustrated. W. B. Saunders Co., Philadelphia, 1908. Price $1.75.

This work is a remarkably clever and satisfactory presentation of the subject. No attempt is made to present the matter in an ultra-technical way, but the explanations are clear, concise, and above all give the nurse, in language easily understood, a definite plan of treatment to pursue, in the absence of the physician, not only in the normal cases but in those emergencies in which prompt and efficient action means the difference between life and death to the patient.

A valuable trait is that no effort is made to insist dogmatically upon a single plan of treatment as the only one to be considered, but the nurse is prepared for the diversity of opinions that she will find among the physicians she nurses for—a point often neglected in their hospital training.

The virtues of the book are many and its faults very few, and it cannot fail to be a valuable text-book for both training schools and individuals. J. C. H.

PRINCIPLES AND PRACTICE OF PHYSICAL DIAGNOSIS. Illustrated. John C. Da Costa, Jr., M.D. W. B. Saunders Co., 1908.

The author in a moderate sized book, containing 523 pages of text, gives a very fair presentation of the subject of physical diagnosis as applied to the internal organs. The method is that usually employed, namely: first, a discussion of technique and general diagnosis; and secondly, special diagnosis of different diseases of the several organs. Numerous illustrations have been introduced, some of which we are glad to say represent pathological lesions, and thus emphasize for the student the importance of correlating the facts of pathological anatomy with those taught under the head of physical diagnosis. Among recent advances in knowledge, a sufficient exposition of the types of cardiac arrhythmia is incorporated, and the importance of comparing arterial with venous tracings is presented. We doubt a little the advisability of introducing the schematic representation used to show the manner of production of functional murmurs due to ventricular dilatation (Fig. 142), since this illustration would convey a wholly erroneous impression to the mind of a student who accepted it as representing the mode of closure of the valves. The sections on abdominal diagnosis are clear and particularly well illustrated. A little more emphasis on the importance of inflation of the stomach seems to us desirable.

Taken as a whole, Da Costa's book is a very satisfactory text-book on the subject, being of a size that will appeal to the students, while it at the same time permits of a sufficient presentation of all essential matters. A. S.

IMMUNE SERA. By Charles Frederick Bolduan, M.D. Second Edition. John Wiley & Sons, New York, 1907. Price $1.50.

We have on several occasions expressed our opinion of this little manual in very complimentary terms. It is designed to be a concise exposition of our present knowledge concerning the constitution and mode of action of antitoxins, agglutinins, hemolysins, bacteriolysins, precipitins, cytotoxins, and opsonins. After introductory pages devoted to historical matter, the method of producing diphtheria antitoxin is given, followed by a discussion of Ehrlich's theory and technical points in connection with antitoxin in general. Although not an exhaustive book, in that it consists of only 154 pages, it provides in a most readable form a sufficiently complete story, or account, of these new realms of research to make it not only of interest but of value for reference to general practitioners. By its aid they will be able to familiarize themselves with terms and facts in scientific medicine which are constantly having greater practical importance, and without a knowledge of which they must feel decidedly out of touch with the progress of the day.

WOMAN. A treatise on the Normal and Pathological Emotions of Feminine Love. By Bernard S. Talmey, M.D. Illustrated. Third Edition. The Medical Council, selling agent, Philadelphia.

Under this title, always alluring, Talmey discusses in his third edition, called for within a few months, the physiology, psychology, pathology, and hygiene of woman as a procreative being, ending with a number of short chapters devoted to morality. These topics he has discussed with extraordinary, perhaps unwise, frankness, since to the prurient this work will prove one of entrancing interest. None the less, though his major illustration is that of the superficially dissected female genitalia, the book is written in a spirit of earnestness and lack of self-consciousness creditable to its author. In the chapter devoted to the analysis of love, the author states that permanent mating is a natural impulse among human beings. True love, he holds, is only possible among the refined and cultured; hence the greater part of humanity has never known, and never will know, the emotions of sentimental love. The only true index of genuine love he holds is the sacrifice of one's own happiness for another's sake. He considers it as rational, conscious, unselfish, deep, and enduring; it is a conscious altruism, never faltering in its ethical sense of duty. It gives more than it takes and has a tinge of tender gratitude for a thousand kind acts. He holds that the impulse of love is the search after an incarnation of the inward ideal, and falling in love is the instinctive conviction that the ideal has been found. The author further states that a man's dependence upon his wife can only be explained upon a sensual basis. As soon as the man's power and intelligence gain the victory over his sensual impulses his independence is secured. As to jealousy, the author holds that this lies mainly in personal vanity, since the person possessing a great deal of vanity is also jealous to a greater degree. The author also states that marital faithfulness is artificial in man but natural in woman, and that strict female chastity is the only means to preserve man's fidelity. This fact, he holds, is at the bottom of woman's deep hatred of her lax sister.

The author's bibliography is interesting, ranging from Solomon, Brantome, Shakespeare, Fink, Freund, and Goethe, to Hartmann, Schrenk-Notzing, Aloisia Sigea.

PRINCIPLES AND PRACTICE OF MODERN OTOLOGY. By John F. Barnhill, M.D., and Ernest De Wolfe Wales, B.S., M.D. Illustrated. W. B. Saunders Co., Philadelphia and London, 1907.

In reviewing a work it is proper to give due consideration to the author's preface, in which it is customary for him to state the class of persons for whom his book is designed and the objects he has had in view in its preparation. This work is intended for the use of students and practitioners of medicine, and in its preparation the authors have had in view the modernizing of the subject, the correction of certain beliefs, chief among which is mentioned the popular conception to the effect that children will outgrow their aural ailments, the urging of the earliest possible prophylaxis or treatment, the emphasizing of the importance of an early examination and the reaching of a definite diagnosis as a basis of treatment, and the thorough illustration of the text. The work should then be taken up from the standpoint of the general practitioner rather than that of the specialist, and it can be said without exaggeration that its perusal will prove for him an illuminating experience and one likely to save him from diagnostic shame and therapeutic tragedy. Of the comparatively few works which have appeared on affections of the ear, this takes rank as the best from the standpoint of being helpful to the general practitioner. In a book so admirably compiled it is difficult to select chapters of especial merit, but perhaps those upon Methods of Examination of the Patient, Acute Tubal Catarrh, Acute Catarrhal Otitis Media, Acute Suppurative Otitis Media, Chronic Purulent Otitis Media, and Intracranial Complications will

prove most valuable. The illustrations, which are numerous, beautifully executed, and accurate, excepting when intentionally diagrammatic, most usefully supplement the text. This book is almost essential to the doctor's working library.

A SYNOPSIS OF SURGERY. By Ernest W. Hey Groves, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.). William Wood & Company, New York, 1908.

This volume, the author states, is an attempt to make an epitome of the salient points in surgical practice, and to place these facts in such a manner that they may most easily and rapidly be referred to or revised. It may be said that in this attempt he has been extraordinarily successful. It is evident that he is possessed of a natural faculty, cultivated by extensive training, for the systematic condensation and arrangement of surgical teaching, in such form as is most acceptable and profitable to the medical student. With this talent has been combined an unusually broad knowledge of the modern tendencies in surgery and the latest and best teachings found in the literature of the day. The book can be commended without reservation for the use of the student and for the general practitioner who wishes a means of ready reference to sound and modern knowledge concerning the comparatively few surgical cases with which he is brought in contact.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE.

The first annual dinner of the Royal Society of Medicine was held at the Hotel Cecil on December 4. Sir William Church, the president, was in the chair, and was well supported by a large number of the profession both from London and the country. After the loyal toasts Mr. Birrell proposed that of the Society, which was received with much enthusiasm. Probably nobody in this country could have been selected for this duty who has had more experience in organization on a large scale than the Secretary for Ireland. As he remarked, the tendency of the age leans toward association and bonds of union or federation. While every one wishes to be associated more or less closely with his neighbors, each individual wants to dictate the terms of the agreement, and the great difficulty is to reconcile the various factions. Looking impartially at the Royal Society of Medicine, the speaker considered that the results obtained in the first year indicated a satisfactory position. The fellows number 2215, and there are 959 members. The library, from which books may be taken by the members, contains over 100,000 volumes, including the latest scientific works, and is a very valuable asset. The President in his reply drew attention to the fact that the Society is not limited to London, but embraces the whole British empire, and that of the roll of fellows and members nearly one-half reside in the provinces or abroad. Only a few small societies still hold aloof, and several have recently amalgamated. He admitted that the Medical Society of London was quite justified in remaining independent. Altogether the dinner passed off very well and was voted a success.

During the past year the Royal College of Surgeons has assented to open its doors a little wider and to admit women to obtain degrees on the same terms as the men. This alteration was made after a general canvass of the fellows and members. Although there was a small majority in favor of excluding women, the fellows, in whose hands the ultimate decision lay, decided to neglect this, and to make the proposed extension. The near future may see some

alteration in the constitution of the governing body of the Royal College of Surgeons. At present the college is governed by a number of the fellows, most of whom are elected by the fellows and members on a ballot. Some of the members consider that they ought to be directly represented by members, and there is a certain amount of agitation on this point. As in all other matters, the ultimate decision of the point rests with the fellows, and it remains to be seen whether they will concede anything. Possibly the next election will turn on this question.

The hygiene of the schoolchildren is occupying a good deal of attention at the present time and is distinctly a step in the right direction. All over the country the children are being inspected as to bodily and mental conditions, eyesight, hearing, teeth, general development, cleanliness, etc. Some of the hungry are being given free meals, and in the country districts the children who come from a distance are brought to school and taken home again in covered vans. The time is shortly coming for the establishment of school-clinics to attend to the children who are abnormal in any respect; the children or their parents are unwilling that a day's attendance should be lost, not so much on account of the loss of knowledge as of the loss of an attendance mark. Both children and parents are proud of the awards for regular attendance. This leads to an overcrowding of the out-patient rooms of the general and special hospitals on holidays, generally Saturdays, and this overcrowding has for some time past led to complaints from those who are working at such times.

London is not overburdened with clinics for conservative dentistry, and it is in this direction that the want is now being felt. Any one can easily have his teeth extracted, but it is a matter of great difficulty for the hospital out-patient class to get teeth properly stopped. This is one reason for the dental quacks doing such a thriving business. Dental students are already waking up to the fact that there will be a number of appointments under the Board of Education, and are seeking for clinical assistantships at those hospitals for children in which dental departments exist. Oral sepsis as a cause for disease is daily becoming more widely recognized, and the importance of oral cleanliness is being impressed on people in general and especially on those who most need such admonition—the less highly educated.

The old-age pension scheme came into force on January 1 of this year. The effects are already diverse. The daily papers had long accounts of the scenes at the centers of distribution, the rejoicings of the recipients, the disappointment of those whose papers were not correctly filled up, and in some cases the sudden death on the very morning of January 1 of those who would otherwise have received their first payment. The remote effects are also wide-reaching. One result is that the aged people are not disclaimed by their relatives to the same extent as formerly, and can now be kept by their descendants with the aid of the additional five shillings a week. One of the professors of anatomy was only the other day bemoaning the fact that he could not get subjects for his students to dissect, and gave as the reason the institution of the old-age pension system. The only bodies which are obtainable for the dissecting room are those of unclaimed persons who die in the infirmaries. Thus is a liberal government responsible for the deficient supply of material to the second-year student!

The Parliamentary Commission on the question of vivisection is still sitting and shows no sign of completing its labors. This fact, however, does not prevent the antivivisectionists from carrying out their interminable programme, and letters have recently appeared over the signature of Mr. Stephen Coleridge raking up the old and long-since settled question of "incomplete anesthesia," the crux of the question being the interpretation of this phrase in the work published by Dr. Crile some years ago. Early in January the *Times* contained a leader on this subject, of a moderate general character, in which the following sentence

occurs: "It may be difficult to get rid of these ambiguities, but they unfortunately offer great advantages to a pertinacious and somewhat unscrupulous controversialist. Without their aid Mr. Coleridge would find his letter-writing activity very grievously curtailed." The author goes on to point out that the introduction of anesthetics was met with fierce opposition, as being contrary to the decrees of Providence, by whom pain was ordained for a beneficent purpose, leaving the reader to draw his own deductions. "Every one has a right to his own personal views, but no right to erect them into moral principles by which to judge and condemn other men." So much for Mr. Coleridge. One good result which has arisen from the "persecution" by the Antivivisection Society has been the formation of the Research Defence Association. The list of vice-presidents includes the names of prominent men from near and far, statesmen, judges, bishops, as well as numbers of the medical profession. The Association is doing good work, as is shown in the first annual report. Information is supplied to those who apply for it, numerous pamphlets on the subject are sent out, and speakers are despatched to various meetings by desire. In time we may hope to see the antivivisection bogy finally burned.

The Home Secretary has ordered an inquiry into the present working of the coroner's law, and especially into its bearing on the question of inquests. The medical profession will be represented by Sir Malcolm Morris and Dr. W. H. Willcox. One of the coroners has in late years come in for a considerable amount of criticism on account of his treatment of medical evidence. It is no doubt largely as a result of this criticism that the inquiry has originated. In the opinion of many the coroner has far too much power, and possibly this will be corrected shortly.

It should have been mentioned last month that one of the gold medals of the Royal Society was this past year awarded to Dr. Henry Head. Dr. Head has done much research work, both experimental and clinical, and report has it that he has not refrained from experimenting on himself in connection with the subject of alteration of sensation after nerve section.

DYSENTERY AND HEPATITIS.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In your issue of November 15, 1908, I find a letter on the subject of "Ipecac in Dysentery and Hepatitis," in which the writer calls attention to the fact that this treatment is a very old one, "merely to show that at least some of the instances of the newly discovered remedies for old diseases are new only to the later investigators." If your correspondent had taken the trouble to read my original writings on this subject, he would have found that I have referred to the old advocates of this treatment in several of my papers, including that published this year by the American Society of Tropical Medicine. The following quotation from my lecture published in the *Calcutta Medical Journal* for June, 1908, will suffice to disprove his charge of ignorance on my part, which it is to be regretted should have been made on the mere perusal of your abstract, which could not be expected to include all the history of the subject: "It only remains for me to point out that this treatment has *the further merit of not being new.* More than twenty years ago it was recommended in hepatitis, actually in order to prevent the occurrence of suppuration in the liver, by two of the greatest physicians who ever came to India —no less personages than Surgeon-General Maclean, for many years Professor of Military Medicine at the great Netley Army Medical School, now unhappily no longer in existence, and also by Dr. Norman Chevers, whose Commentary on Indian Diseases remains the most remarkable storehouse of facts concerning modern medicine in India which has yet seen the light. They advised ipecacuanha on empirical grounds, but unfortunately it has fallen largely out of use. I venture to hope that my researches will have placed the

subject on a more scientific and lasting basis by the recognition of the ameba as the constant and sole cause of the disease, and the dependence of amebic hepatitis on previous ulceration of the large bowel, commonly of a latent type and character, which is readily curable by ipecacuanha. The supply of amebæ is cut off from the liver and the inflammation rapidly subsides, if abscess formation has not already taken place; while the value of the blood changes in allowing an early diagnosis to be made is also a great help."

The importance of my work will be evident from the simple statement that since the regular adoption of this treatment at the European General Hospital during the last three years, no case so dealt with has gone on to develop a liver abscess in hospital, although this was previously a common occurrence, while a number of patients, sent in for operation for liver abscess on account of the extremely acute symptoms, have made a rapid and complete recovery under ipecacuanha, having been received just in time to prevent impending suppuration. As a result of my present experience I regard amebic, or tropical, abscess of the liver as an absolutely preventable disease in the vast majority of instances, so that the occurrence of suppuration in such a case should cause serious questionings in the mind of the physician in whose hands it has been allowed to develop. Yours respectfully,

LEONARD ROGERS.

CALCUTTA MEDICAL COLLEGE, Jan. 2, 1909.

THE THERAPEUTIC EFFECT OF CYANIDE FUMES.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I wish to apprise you of an observation that I have made extending over a period of three years. Of course we all know of the efficacy of potassium cyanide in the treatment of bronchitis and the cough of phthisis, but I think its prophylactic usefulness has escaped observation. In the reduction of gold ore tremendously large quantities of the solution are used. The cyanide reduction plant here, probably the largest in the world, has a floor area of 15,000 square feet, and there are continually 63,450 gallons of cyanide solution, varying in strength from 0.42 to 1.50 per cent, in circulation. Of course this exposes a big area to evaporation, which keeps the air well charged with the emanations from the cyanide. My point is this: there has never been a case of cold, coryza, or cough from any cause in the men who work in this plant during the three years that I have observed it. I think this is a valuable observation, and in your future works, or revision of old ones, I authorize you to add it to the discussion of this drug, giving me credit for it.

Acting upon this observation I have been using a solution of cyanide in a wide-mouthed jar, placed in the room of cases suffering with cough from phthisis. I do not have the jar corked, but allow evaporation to take place, and the patient breathes the cyanide-charged air with great benefit.

Yours very truly, J. W. NOLAN,

Physician of the O. C. Mining Co.

CHITTABALBIE, KOREA.